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S. O. S.

MORE than money, more than soldiers, more than anything else, our country needs men to help build ships. Iron workers, wood workers, electrical workers, all types are absolutely necessary. You who read this, ask yourself: "Can I serve in any capacity in this work?" If you actually cannot, then use your influence to get one at least who can and will.

THE GERMAN RUBBER INDUSTRY.

THOSE who know the German rubber trade as it was and as it is, view it with mingled pity and wonder; pity for its terrible plight brought about by the war, and wonder that any people on earth should still be loyal to the cause and the leaders who promote it.

It is no exaggeration to say that the rubber industry in Germany has gone back thirty years. Her hard and soft rubber export trade is irretrievably gone. The flourishing *Hevea* and *Manihot* plantations in Africa and Oceanica have been taken over by the English and the French. At home not only have wholesalers and retailers of rubber goods gone out of business, but the great rubber factories are run only on part time and that on war work.

To understand just what has come to the manufacturing portion, one needs to take any single plant, an important one, and visualize its present condition.

Machinery: worn, patched, some of it still running, but very noisy; shafting out of true; lubricating oils and expert machinists practically unobtainable.

Labor: old men, women, children and cripples. Trained calender men, cutters, press men at the front, mutilated, or dead.

Supplies: almost no crude rubber, some reclaimed, and many substitutes and plastics; cotton cloth for wrapping and insertion long a thing of the past; naphtha guarded as if it were liquid gold; making-up tables stripped of their zinc coverings, the mold room emptied of its soft metal molds; brass couplings and unions replaced by iron, copper piping all taken away; the splendid laboratory equipment sent to munition works; the whole plant slovenly, unkempt, out of repair, out of date.

With all this, to face a future that holds an impoverished home market, and a justly suspicious and hostile world market.

And still they follow mad leaders to greater suffering, sacrifice and disaster. Willingly? Who knows?

RECRUITING LABOR.

THE making of the United States Employment Service the instrument for handling the national labor question meets with the approval of both employers and employes. Since the entrance of the United States into the war both the American Federation of Labor, representing the workers, and the Chamber of Commerce of the United States, speaking for employers, have sought this action which should have been taken six months ago as a necessary and logical part of the work of mobilizing the labor resources of the country for the prosecution of the war. The recruiting, cataloging and segregating of 3,000,000 workers for war contract plants, shipbuilding and agriculture is already under way, and through a network of interrelated labor exchanges, these workers will be transferred from one section to another as needed to eliminate the present chaotic situation of a surplus of labor in one region and a shortage in another. The plan will in large measure eliminate the labor losses due to many kinds of seasonal employment.

COMPOUNDING TREASON.

IT was thirty years ago this month that a veteran rubber superintendent related this incident. The narrator and his employer have long been dead and the factory where they turned out rubber goods is no longer in existence, so no harm can come from the telling. It con-

cerned a Civil War order for rubber goods. They were made of a compound so rotten that it was a wonder that they held together in the short journey to the depot. They were rejected once, twice, then in an obscure and roundabout way, at a distant point, were accepted.

"The old man was a wizard at that," laughed the superintendent. "And the money he made! Barrels of it!"

The tale did not seem particularly shocking thirty years ago. Of the chills and fever and pneumonia that came to the cheated soldiers we knew little. That some were perhaps murdered through traitorous avarice we could not realize. It was a tale of a distant past and concerned a war that was but a dim memory. But to-day with war a present actuality, with thousands of kindred, friends and neighbors depending for health and perhaps life upon the integrity of our goods, we thank God that the profiteer of the Civil War has gone to his reward, and that in the whole American rubber trade to-day he has no successor.

KICKLESS DAYS.

TO criticize, to condemn, to kick, are the precious privileges of the Anglo-Saxon. The crits, cons, and kicks do not usually entail disloyal actions, nor hinder active patriotic work. Indeed they often are the result of active, conscientious interest. They also show thought freedom that is a valuable heritage of democracy. Continued criticism in times of stress, however, is bad for kicker and kickee. It is therefore suggested that as an accompaniment to the meatless, wheatless and heatless, there be added kickless days—one day a week to be devoted to total abstinence from criticism; one day when the Administration, Daniels, Baker, and indeed everything in this fair land of ours be exempt; for instance Monday. It will be a welcome substitute for the five Blue Mondays of January and February. To those who must kick or perish, let them turn their vituperative genius across the sea and kick the Kaiser.

POSTAL INJUSTICE TO READERS.

AN ignorant country boy, wholly without ambition and living in the backwoods, picked up an automobile journal and became interested in its pictures. Later he pored over types of cars, and later still over diagrams of construction and carbureters, finally becoming familiar with all of the parts. To-day he is an expert in one of the big plants and a designer of note. This is but one of thousands of similar cases.

Under the proposed zone system of postage the far away hamlet in which he lived would not have received the journal that gave him his start.

Can Americans afford to cut off stimuli toward industrial education for the sake of a postal bill that is a manifest injustice to publisher and reader, and that promises no increased revenue?

DEAN OF DRUGGISTS' SUNDRIES WAS FRANCIS H. HOLton, who recently passed away at the ripe age of 86 years. In the beginning of his career as rubber manufacturer he was a contemporary of those pioneers, Dr. Davidson, Dr. Mattson, George F. Hodgman, C. B. Dickinson and Henry G. Tyer. He it was who first attempted the production of artistic rubber goods, and his non-blooming effects in red and crimson were long the envy of the less expert. Fortunate in having a wonderful constitution and an agreeable disposition, he was frank, kindly, optimistic, and possessed of a trustfulness of others that was never weakened by disappointment or betrayal. In his early seventies, he became associated with the Goodrich company and a few years later retired with a pension. The last years of his life were singularly happy. Free from care, he passed his time in reading, in occasional trips to Mount Clemens, and in entertaining friends, of whom he had a multitude.

IN THE EXECUTION OF THE FACTORY CLOSING LAW the Government appealed to manufacturers to live up to the "spirit" of the law. That is exactly what should be done with that and with all laws. The man who violates the spirit of any law is a lawbreaker. In this connection it might be well to point out that if either the letter or the spirit of the law relating to the free admission of india rubber and gutta percha were observed, no tax would be assessed upon Pontianak or chicle. Now that the Government asks individuals to live up to the spirit of laws it will surely demand the same observance on the part of its own servants.

THAT DISTINGUISHED PUBLICIST AND SCIENTIST, COURTney De Kalb, attracts wide attention by certain articles relating to the use of sulphur as an aid to cotton growing. As very large users of both cotton and sulphur, the rubber trade is much interested. Now, if Mr. De Kalb can also induce the cotton plant to produce rubber latex it would be a long step in advance. A plant containing rubber, sulphur and cotton, and doing its own mixing, would be a rubber plant indeed!

THE WOOL MEN, WEARY OF THE TERM "SHODDY," ARE turning to the more deceptive terms, "reworked wool" and "reclaimed wool." In this they are following the lead of those technical journals and manufacturers who years ago, feeling that the term "shoddy," by which reclaimed rubber was then known, degraded a very necessary and excellent product, adopted the terms "reclaimed rubber" and "recovered rubber." These are standard names to-day, the word "shoddy" being used only by old-timers who find change difficult.

WOOD PULP HAS BEEN USED INSTEAD OF COTTON IN THE manufacture of explosives, and in the United States. This is good news indeed. Its effect on cotton duck prices will not be apparent at once, but changes come rapidly, and it augurs future good, anyway.

What I Saw In the Philippines—IX.

By the Editor of The India Rubber World.

New Facts Concerning Rubber Planting in Mindanao—Spirig's Balactasan Plantation—Rainfall in Mindanao and Sulu—Clearing as Applied to Philippine Lands—Cogon—More About the Patani Bean—Sizing Up the Natives—The Moros and Their Pacification—Filipino Schools and Their Popularity—Native Prisons—The Filipino in General—The Jones Bill and Its Effects—Baseball and Cock-fighting—Why American Big Business Is Not Planting Rubber—President McKinley on Rubber in the Philippines.

FACTS about *Hevea* culture in the Philippines are so few that one may be pardoned for eagerly grasping anything new that comes to hand and putting it ahead of anything else in the way of experiences or observations. That is why as a preface to subjects foreign to rubber planting I wish to cite portions of a late and very interesting rubber report.[1] The excerpts, be it noted, are confined to portions that relate directly to Philippine rubber planting only. After reviewing the progress made by the Basilan Plantation already described in these pages, Mr. Wester goes on to tell of another on the island of Isabela.

The Balactasan Plantation was started four years ago by John Spirig, Zamboanga. This plantation is located east of the Balactasan river a few kilometers east of Isabela, also on Basilan. The plantation includes 17,000 trees in excellent condition.

Relative to the growth of rubber on Basilan, Mr. Miller has furnished the following statement of the average girth of the trees on the Balactasan estate during the past year, at a height of 90 centimeters above the ground; girth April 28, 1916, 26 centimeters; October 28, 1916, 31 centimeters; January 28, 1917, 35 centimeters; April 28, 1917, 40 centimeters. At this last date the trees were three years and eight months old.

According to Mr. Spirig, on land occupied by cogon on secondary jungle the cost of bringing a hectare of rubber trees into tapping, including overhead expenses, exclusive of the cost of land and buildings, amounts to about $375 on an area of 80 hectares.

The table shown herewith gives the mean monthly and annual rainfall records from various points in the Philippines where rubber culture is possible and has been copied from "Annual Amount and Distribution of Rainfall in the Philippines," by the Rev. Miguel Saderra Masó, Assistant Director of the Weather Bureau, Philippines.

MEAN MONTHLY AND ANNUAL RAINFALL IN THE DEPARTMENT OF MINDANAO AND SULU.

	Municipalities and Provinces.					
Month.	Dapitan, Misamis. Mm.[2]	Caraga, Davao. Mm.	Cotabato, Cotabato. Mm.	Davao, Davao. Mm.	Isabela, Basilan. Mm.	Jolo, Sulu. Mm.
January	118.4	294.8	98.8	110.2	54.4	89.1
February	123.3	402.4	88.8	141.6	89.2	122.4
March	55.7	270.3	68.1	164.2	58.2	85.2
April	110.2	148.5	164.9	190.3	89.2	118.2
May	70.9	203.7	218.5	252.8	108.0	160.2
June	117.7	103.6	237.3	234.2	210.6	203.3
July	151.6	142.7	292.0	208.9	208.4	172.0
August	89.3	75.7	271.8	207.4	205.8	170.4
September	141.6	67.4	248.6	203.6	201.6	184.4
October	246.0	128.4	255.1	242.3	261.7	222.9
November	369.7	171.9	231.7	176.4	168.4	193.0
December	277.4	422.6	133.5	208.8	138.6	144.8
Total	1,871.8	2,432.0	2,309.1	2,340.7	1,794.1	1,865.9

It would appear, then, that in the territory in question the rainfall is satisfactory for rubber, both as regards quantity and distribution.

Within the limitations set forth in the paragraph on climate and soil, rubber may be grown in Mindanao south of a line drawn from Baganga on the east coast of the island to Cagayan on the north coast, in Basilan, in the Sulu Archipelago, and on the southern half of Palawan. Owing to the prevalence of typhoons the islands to the north of Mindanao are unsuited to rubber. Planted there rubber would be foredoomed to failure from the start.

Naturally, not all the land in the region recommended for rubber is suitable to rubber plantations; on the other hand, there are large tracts of land that are well adapted to this crop, and properly developed would yield amounts of rubber which would play no inconsiderable part in the exports of the Philippines and in the imports of crude rubber into the United States. Most certainly it is a matter that deserves close investigation by American capitalists.

The lands available for rubber in the Philippines are covered with virgin or secondary jungle or cogon, *Imperata cylindrica*, in Java and the Federated Malay States referred to as lalang or alang-alang. The virgin jungle land is, of course, the most fertile, and in the early days of rubber planting it was considered superior to the cogon land. However, experience has taught that

Bureau of Agriculture, P. I.

PARA RUBBER THREE AND A HALF YEARS OLD, BALACTASAN PLANTATION, BASILAN.

Patani (Lima Beans) Used as Cover Crop.

on virgin jungle land rubber is subjected to attacks from *Fomes lignosus*, a parasitic fungus which develops on the jungle stumps that may remain after the clearing, from which the fungus invades the *Hevea*. This fungus is absent in the cogon lands; therefore, where other advantages are equal, the cogon is considered to be preferable to virgin jungle for a rubber plantation.

Where the vegetation is virgin or secondary jungle, the trees and shrubs should be cut down and burned during the driest part of the year and all the smaller stumps taken out and burned, together with remaining logs, and the land plowed. On virgin jungle land there will be some stumps that are too large to remove economically until the smaller roots have decayed, but these should be dynamited and burned as soon as they can be removed at a reasonable cost, usually within three years; otherwise the stumps will be a source of danger as a breeding-ground for fungi as long as they remain in the field. The ideal way would be to clear the land of all stumps before planting the rubber.

The cogon land is most easily handled by burning the cogon

[1] "Rubber Culture in the Philippines," by P. J. Wester, Horticulturist, Department of Mindanao and Sulu. "The Philippine Agricultural Review," Manila, P. I. Third quarter, 1917. Vol. X, No. 3.

[2] A millimeter is .039 inch.

and then plowing and cross-plowing the land and planting patani as a cover crop to choke out the cogon preparatory to planting the rubber. If it is desired to save the humus, this may be done by cutting the grass and piling it in rows, then plowing the land between, which, of course, should be planted to patani.

It is doubtful whether very steep hillsides can be profitably planted to rubber, where the collection of latex would be more expensive than on flat and moderately sloping land. The steepest hillsides might to greater advantage be planted to coconuts, which will succeed well under the same soil and climatic conditions as rubber, and the harvesting of which could be attended to more economically than that of rubber under the aforementioned conditions.

If there is any danger of the flat lands being flooded there should be ample surface drains for the removal of the rainwater. On sloping ground liable to erosion the land should be terraced, or at least drains or trenches should be dug at right angles to the slope every few meters apart, to prevent soil wash. These should be supplemented with the planting of legumes to retain the soil during heavy rains.

There may be other plants equally good or better, but in the Philippines it has been repeatedly demonstrated that the patani, *Phaseolus lunatus*, answers the purpose as a cover crop for rubber better, perhaps, than all other plants that have so far been tried. *Passiflora foetida* also makes an excellent cover crop, but does not, of course, enrich the soil to the same degree as the patani.

If patani seed is available at a reasonable cost it is well to plant it at the rate of three seeds in hills 0.75 to one meter apart, in rows one to one and one-half meters apart, as the plants will then rapidly cover the ground and choke out the weeds. However, if seed is scarce, these distances increased by one-third to one-half will answer, though naturally it will take more time for the vines to run over the weeds. Two or three plowings along the rows of beans should be given the young patanis to assist them in getting a vigorous start in competition with the weeds.

After the cover-crop plants are well established, the rubber may be either "ring weeded" or "strip weeded." In the former case the rubber trees should be gone over every three to four weeks and all bean vines and weeds cleared away in a circular space about 0.75 centimeter in diameter around the trees. Or, if desired, a strip of the land along the rubber trees may be kept clean by repeated hoeings and cultivation. Of these two methods the ring weeding is the most economical while the plants are small, say up to two years old. After this age the strip wedding is preferable.

If the growth of cogon and other weeds appears to be heavy and difficult to cover by the patani and *Passiflora*, the rolling of the weed growth to break it down, with a heavy roller, say of a weight of 500 kilos, will be found to be a great aid to the cover crop in subduing the weeds. Such a roller may be made on the plantation of yacal or some other heavy native timber. If necessary, repeat the rolling of the land once or twice at intervals of six weeks to two months. The rolling does not injure the patani and the *Passiflora*, but its effect upon the cogon is remarkable and must be seen in order to be appreciated.

As the rubber trees approach the age of three to four years, the shade becomes so dense that the patani and *Passiflora* can no longer maintain themselves, and the weeds are then apt to assert themselves if allowed to do so. The growth of weeds and the cover crop should then be cleared away and piled up to decay, and the field plowed. After this the best and most economical practice is to keep the land clean-cultivated. It should be remembered, however, that under clean culture, in order to be effective, the land must be cultivated once every two to three weeks at least, and pains should be taken to see that no weeds are allowed to bloom and go to seed. During the first month millions of weeds will seem to spring up after every cultivation, but if the work is faithfully attended to and no weeds permitted to go to seed, the weeds will be seen to decrease gradually after each cultivation until finally the expense for weeding will be reduced to a very insignificant figure. In fact, some authorities maintain that considering the accelerated growth of the rubber under clean culture it pays to clean-cultivate rubber from the very time when the plants are set out in the plantation. However this may be, still, on all except extremely rich soils, a leguminous cover crop during the early stage of the rubber plantation is believed to be the most advantageous in the long run, since no more nitrogen can be added so cheaply later by the means of green-manure crops, after the rubber trees have grown up and shade the ground.

Bureau of Agriculture, P. I.

PARA RUBBER THREE YEARS AND NINE MONTHS OLD, BALACTASAN ESTATE, BASILAN.

On the voyage down to Mindanao and back, being thrown in with American and native officials, not to speak of planters, it was impossible not to get many sidelights upon the traits of the people, and the manner of doing things; in fact, the actual situation. Some of the bits of gossip were exceedingly interesting.

For example, the story of the Mohammedan teacher from Constantinople who journeyed to the southern islands to purify Mohammedanism. He was not allowed to land and we all wondered why. To-day, with the war on and the ramifications of German propaganda becoming more apparent, one guesses that Teutonic influence was back of the mission.

Then, too, the tales of the military occupation and of its relinquishment in favor of the rule of reason and friendliness were very enlightening.

In Mindanao, particularly, it seemed at first a ticklish experiment. Our soldiers had been in the habit of going after the Moros in their mountain fastnesses and thrashing them into obedience. They, however, were never really subjugated, for they are independent and warlike and do not come easily under the yoke. Under the new rule the soldiers were withdrawn and the Moro leaders invited to conferences. After a little they responded and in a few months not only forsook their mountain hiding-places and reestablished their villages in the lowlands, but they brought in all of their firearms and voluntarily surrendered them.

Once their viewpoint was understood, the way to peace was easy and plain. For example, one Moro chief sent word to the Governor that he and his men were about to become outlaws as it was his duty. The constabulary had raided one of his villages and during the fighting had killed a daughter, wounded his son and one of his wives, and killed thirteen of his men. This because an enemy had falsely accused him of harboring bandits. Being persuaded to a conference, he finally abandoned his decision to revolt, saying:

"After all, my son will recover, I have many other daughters, and although a wife died I still have others."

So he dismissed his warriors and turned over to the Governor

a formidable store of Krags and Springfields no longer needed.

More and more, too, are the people coming to see that good roads and schools are of great advantage to them.

At first, if roads ran through their property, they claimed damages just as Americans do, but when they began to appreciate the value of the roads they gave the land and worked for nothing, the Government merely finding them while the work was in progress.

So, too, with the schools. At first they were accepted with much suspicion, but to-day they are so popular that there is not half enough in the way of housing to accommodate the shoals of pupils. The scholars, while being taught the three "R's," are also taught to be practical agriculturists. The Spanish idea was to prepare the boys of the well-to-do to be doctors or lawyers. Under the present system some of the doctors are put into the public schools and trained with the rest. They are taught to plow and hoe, and the white teacher works with them, thus dignifying tasks that were formerly considered degrading to any but slaves.

The present Sultan of Sulu, the ruler of the Moros, under treaty is the last sultan to hold such office in the Philippines. He is abnormally sensitive to criticism, as thin-skinned in this respect as were Americans of a generation ago.

That he and indeed all of the islanders have advanced wonderfully since the American occupation none can deny. The transformation of the non-Christian, head-hunting tribes into road-building, tax-paying, peaceful peoples is in itself a modern miracle. Then, too, the sanitation of cities, towns and villages and the consequent stamping out of disease, the creation of abundant supplies of drinking water, the educational system that has attracted the attention of the whole civilized world, the fine hospitals, the segregation of the lepers, and the enforcement of laws to safeguard property and person, all have done wonders. As far as absolute independence goes, the patriotic Filipino does not desire it at the present time; indeed, were the United States to withdraw entirely, soldiers and all, a dozen insurrections would undoubtedly be started over night, and the result, if no other nation intervened, would be chaos.

The present policy of putting natives into positions occupied by Americans is in line with the ideas of the party in power, and administered with discretion is all right, but where public service suffers it is just neither to the American nor the Filipino.

PANORAMIC VIEW OF DAPITAN AND HARBOR, DAPITAN, MINDANAO.

His salary from the United States is $3,000 a year. Incidentally, as he is ruler also of Borneo, he receives from the British an additional $5,000 yearly.

As with the schools, so with the prisons. Of these I visited two, one at San Ramon, some 17 miles from Zamboanga, the other the famous Bilibid prison in Manila. They were marvels of neatness, of good ventilation, and of order. In reality they have proved to be wonderful reformatory institutions, teaching trades to thousands, and instilling a respect for law, order and cleanliness that has had a marked effect upon the native population of the whole archipelago.

An American was holding forth on the after-deck in this fashion:

"They are natural grafters, they pass all sorts of fool laws, any glib speaker is sure of political preferment——"

He was interrupted by a fine old gentleman who had entered during the tirade.

"Young man," said he, "even if these things were true, what right have you far from home to exploit the shortcomings of your native land?"

"I was speaking of the Filipinos," was the reply, "but, by George, it fits us, too!"

The Moro is not the Filipino whom the occasional visitor to Manila meets. The latter is usually a Tagalog. At his best he is polite, industrious and trustworthy. He easily excels in penmanship, drawing and music, and is withal quite an orator. Nor is it anything but unjust and unrighteous to deny and belittle the brilliant constructive work done by Forbes, Worcester and a score of others to whose self-sacrificing work most of the present advancement is due.

Speaking of independence, the Jones bill united the Filipinos, exactly because it made the date of their divorce from Uncle Sam something to be reckoned with in the indefinite future. The Clarke amendment, however, filled them with fear, and they were full of joy when it was defeated. At the time of the Wilson-Hughes campaign a curious condition existed. The news at first gave it that Hughes was elected. Then it was that certain Americans—not of the better type of Republicans, perhaps—made and talked definite plans for business exploitation and rejoiced exceedingly. With the later knowledge that Wilson was reelected, the Filipinos came to the front. They not only rejoiced, but felt that they were actually free to do as they pleased. It is said that for a time they refused to serve any papers against another Filipino. This threatened to result in a serious situation, and the leading Americans and Filipinos got together and formulated a working agreement whereby business should go ahead as before.

Dean Worcester, when first he came to the islands, remarked upon the absence of sports. Cock-fighting seemed to be the only relaxation. With the advent of the Americans, however, came the introduction of baseball. In the schools, also, was arranged a variety of athletic meets. The result is an interest

in sports on the part of the natives, both Christian and non-Christian, that is rarely equalled. There are also scores of baseball teams that play first class ball, and draw big and enthusiastic audiences. Furthermore, baseball and kindred sports have done more to stop cock-fighting than any other force, moral or legislative.

It is a curious fact, but in the past the wealthy Filipinos have not gone into planting on any considerable scale. There are many who are worth anywhere from $500,000 to $1,000,000, but of them all not one owns a rubber plantation, or, indeed, any other sort.

Within the last few months, however, according to advices

BUA SCHOOL VS. EASTER SCHOOL, BUA AT BAT.

from the islands, they are beginning to look into rubber. This is a very hopeful sign, for if the natives, big and little, begin to plant, the future of Philippine rubber is assured.

In spite of the fact that soil and climate are ideal for rubber planting in the Philippines, it remains that no great investment of American capital has been made there. To state the reasons as they appear to those who are familiar with big business, I induced a gentleman connected with one of the great financial institutions of the country to put upon paper his position in the matter. I should say, in this connection, that he is in touch with the business of the islands and has himself visited the important Philippine centers. He said in part:

I am a firm believer, as you doubtless know, in the development of the possibilities of our own islands, primarily because whatever of tropical products we buy of our islands we are able to pay for in the products of our farms and factories, while that which we buy from foreign countries is chiefly paid for in cash, which the receivers thereof promptly send to Europe in the purchase of their requirements.

It seems quite apparent that the rubber industry of the world, which, of course, must continue to grow with the growing demand for that class of material, is to be permanently transferred from the natural forests to plantations, and I infer that the Philippines, especially the southern islands of the group, offer facilities perhaps quite as good as those sections of the world in which rubber plantations have been already developed, and with the ample supplies of capital now available in the United States the opportunity should be utilized.

Of course, there still remain two obstacles: first, the fact that the laws at present, as I understand, though I am not an authority on the subject, do not permit a single individual or corporation to own a sufficiently large tract of land. Perhaps it would be possible to bring about this condition on a scale which would justify large investments and the kind of business experience necessary to assure the best method of operation and thus complete success. I am told, however, that a corporation which is now developing a great coconut-oil industry in the Philippines, and which has its headquarters in New York and thus presumably does American business, has met this peculiar condition by arranging with various individuals to obtain tracts adjacent to that which it possesses, and take long-time leases thereon. If such a plan can be worked out in the rubber-producing area of the islands, it would seem that one of the two obstacles might be overcome.

The other obstacle, of course, lies in the uncertainty as to the permanence of our present relations with the islands, an uncertainty which is intensified by the continuance of the element in governmental control which has suggested the termination of our parental relations with those islands.

In addition to the above, there is the feeling of a labor shortage which my banker friend did not mention.

As a matter of fact, of the three bogies that have been so often advanced—American abandonment of the islands, impossibility of owning enough land, and labor shortage—only the last is seriously talked about to-day. Again, quoting a portion of a letter recently received from Governor Carpenter of Mindanao may dispose of the labor question:

If it has not already come to your attention you will be interested in knowing that the Agricultural Congress, a semi-official organization of representative planters throughout the Philippine Islands, almost exclusively Filipinos, during its recent sessions in Manila declared strongly in favor of amendment of immigration laws to permit the importation of plantation labor. In addition to all the laborers brought from Luzon and Visayas by commercial coastwise vessels, the capacities of which have been taxed constantly, the Government has brought in on our small cutters like the *Mindanao* more than six thousand agricultural laborers from the Ilocos and Visayan provinces, and has requisitions for nearly two thousand more which I am shipping, but the requisitions and the recruiting more than keep pace with the work of our shipping facilities.

We all here hope you will keep your interest in the Philippine plantation rubber. Manila, Spanish and Filipino capitalists are going ahead with combined coconut and rubber plantations, of which two, of one thousand hectares each, are now, I believe, certainties. ——— capital closed definitely with ———, who is now going ahead putting in two thousand acres of Para rubber near Isabela de Basilan as what I hope will prove to be but a beginning of American investment.

Cordially yours,
(Signed) FRANK W. CARPENTER.

In 1899 in a message to the Fifty-sixth Congress, President McKinley said: "The people of the Philippine Islands should be helped by the establishment of experiment stations to a more scientific knowledge of the production of india rubber." This was the first official suggestion by the United States Government of the importance of rubber culture. It was made nearly twenty years ago. Excellent experiment stations were established and still flourish, which have accomplished much, but as far as rub-

NATIVE CART DRAWN BY CARABAO.

ber goes their work has been fragmentary and perfunctory. This is a statement of sufficiently obvious facts, not complaint or criticism. If the Presidential message had substituted *Hevea* for India rubber, so that time, effort and advice might have been expended upon it instead of upon Ceara and *Castilloa*, things might have been different. Planters have been led to think that the last two named are as desirable as *Hevea*. They are, as far as concerns growth and ease of culture, but as to production, there is not and never will be any comparison.

(To be continued.)

War News of the Rubber Industry.

Espionage and Sabotage in Factories—Government Recognizes the Importance of Chemistry in the War—The Airplane After the War—American Rubber Footwear in the War—Rubber Athletic Goods for American Soldiers—The Surgical Requisites Association—Service Notes and Personals—Service Flags.

ESPIONAGE AND SABOTAGE IN FACTORIES.

MANUFACTURING plants engaged in war work, including several rubber factories, are in grave danger of injury or destruction at the hands of enemy aliens or those of disloyal citizens or cranks. The admixture of different races comprising so-called American labor is being exploited by those who wish to hamper the efforts of this country to win the war. Guarding factories with troops, even were it feasible to release the necessary number from their great task across the Atlantic, does not altogether meet the requirements, for the chief danger is from within. Officers of the Intelligence Department of the Army are therefore advising manufacturers everywhere to adopt certain measures of internal protection, which may be summarized as follows:

Each factory should have a superintendent of personnel and plant protection. This officer's sole business should be:

First: He should each day, and, if possible, more than once a day, make, or direct to be made, a careful examination of the whole plant from roof to cellar, and especially those seldom-visited places where an intruder might lurk or an accumulation of inflammable material or waste be thrown. This general inspection is of the greatest importance and should be supplemented by the floor bosses and sub-bosses, the senior in charge, making similar inspections of their respective floors, and reporting to the personnel and plant protection officer at frequent intervals—and always at the beginning and end of the day, and at noon.

Second: A careful scrutiny should be made of the workers when entering in the morning and leaving at night, and particular attention should be paid to those leaving at odd hours. All should be provided with signed identification cards, or by other device, supplemented by signed cards alphabetically arranged, the loss of which would mean discharge.

Third: He should tabulate or card-catalog the employes to an extent sufficient to enable him to know who are really loyal citizens as distinguished from those who may possibly be sources of danger.

Fourth: No help can be as effective in picking out the would-be mischief-maker as that of the loyal employes. To this end the personnel officer should, as rapidly as possible, enlist the services of the more intelligent and unquestionably loyal, and especially of those who have sons or other relatives in the army. It should be made clear to every one that by guarding the factory in which they work they are doing a service to the general government of as much importance, and even more effective, than that rendered by sentries on guard.

GOVERNMENT RECOGNIZES THE IMPORTANCE OF CHEMISTRY IN THE WAR.

Provision has now been made through an order of the Adjutant-General of the Army by which manufacturers of material necessary to the prosecution of the war, who have lost the services of chemists through the first draft, may again obtain the services of these men for war work.

It is announced also, that provision has been made by which manufacturers threatened with the loss of their trained chemists in the present draft may retain these men. Only those chemists whose services are necessary to war work will be considered, and the evidence submitted by the manufacturer must be conclusive.

Manufacturers thus affected should apply to the Chemical Service Section, N. A., New Interior Building, Washington, District of Columbia. This request must come from the manufacturers; applications from the men will not be considered.

THE AIRPLANE AFTER THE WAR.

Manufacturing rubber tires, shock absorbers, and other rubber products for airplanes is to be a permanent industry. The airplane has come to stay, not only as an engine of war, but as a carrier in peace. Under the stimulus of war, aviation and airship design have made great progress; indeed, have become exact sciences. There seems to be no limit to possible achievements. Already planes have been built to carry 25 passengers; to travel at a speed of 150 miles an hour; to ascend 4½ miles into the air, and to cover 920 miles without a stop. Such instances of power and endurance indicate that commercial aviation is so near at hand that its problems must be anticipated by American airplane manufacturers.

Peace will find this and every great belligerent country with an immense air capital on hand, comprising a great airplane fleet, factories and machinery for quantity production, specially trained mechanics, and a great army of aviators and training schools for maintaining it. This capital must be so conserved and directed that, if possible, not a man nor a dollar will be lost in the hiatus between war and peace. A complete plan should be ready for the conversion of all this equipment to the uses of peace and commerce. England, France and Germany are perfecting such plans, and our own newly appointed Civil Aerial Transport Committee under the Nationai Advisory Committee for Aeronautics is working out a scheme for America.

The first and more obvious use of airplanes in the future lies in the delivery of mails. Already Congress has appropriated $100,000 for the initial steps in aerial mail delivery, but for the present all manufacturing energies must go into the war planes. However, the War Department has agreed, subject to congressional approval, to turn over all planes no longer adaptable to military use to the Post Office as a beginning of its air service. In view of the numbers which may be so transferred later, it is essential to lay plans without delay, as is being done by the Post Office Department, for the specific routes, the airdromes, quarters, personnel, etc. Abroad, both France and Italy have developed aerial mail service in a preliminary way to great advantage.

Plans for the establishment of an aerial postal service between France and England are rapidly approaching realization,

Handicapped

I've given up all white bread, and only eat corn pone; I don't treat other fellows, and never drink alone. Costly cigars are side tracked in favor of a brier; all luxuries I'm dropping as living costs go higher. Liberty Bonds I've purchased, once and yet once again; the Red Cross hat I welcome and in it slip a ten. For scores of busy knitters I joyfully buy yarn, and gladly go to rallies in theater, hall or barn. But it's not enough! I'm sore at heart that I can't join in the fray, and fight for my flag, and maybe die, in the the good old-fashioned way.

Courtesy of "Aerial Age," N. Y.

AMERICAN MILITARY TRACTOR.

and it is now believed that such a service on a limited scale will be put into effect without waiting for the end of the war. It will be used only for carrying official correspondence, especially that of the inter-allied committee sitting at Versailles.

Reports and communications from the American representatives thus will catch the mail boats from England in about two days' better time than when the usual methods are employed.

Aviation has already become to some degree a pastime among the more adventurous men and women of wealth, just as automobiling did in its early days, and there is reason to believe that the airplane is destined to become a popular vehicle as well as a useful commercial carrier of the future.

Postmaster General Burleson is already considering bids and will shortly contract for the construction of five airplanes and a sixth in reserve to be used in the establishment of an aerial route for the delivery of first-class mail between Washington, Philadelphia and New York, making, at this time, one round trip per day, which may later lead to expansion. A daily service between New York and Boston is regarded as an early probability.

The machines are to be completed not later than April 25, 1918, and the War Department will release a sufficient number of motors to equip them.

The specifications require that the airplanes shall be complete, capable of carrying 300 pounds of mail a distance of not less than 200 miles without stop, at a maximum speed full load of 100 miles, a minimum speed full load of 45 miles, climbing speed of 6,000 feet in 10 minutes, and shall be equipped with Hispano-Suiza motor, 150 H. P.

It is not the purpose of the Post Office Department to make this an experimental service. Its practicability is to be assured before the establishment of the route. Once established, it is to remain a permanent service. A special postage rate will be charged, not exceeding 25 cents per ounce or fraction thereof.

AMERICAN RUBBER FOOTWEAR IN THE WAR.

The product of American rubber factories has done much to make our own and the troops of the allied nations as comfortable as may be in the heavy rains and mud which have proved the most obstinate of foes on the western front in France during much of the winter thus far. When press dispatches recently referred to the mire in which our boys "over there" were receiving their final intensive training, it was reassuring to receive photographs, such as those accompanyng this item, showing them arrayed in their slickers, waterproof coats and rubber boots.

The rubber footwear business which up to January 15, 1918, had been awarded to American manufacturers, by both the United States Government and the Allies, comprised 2,321,200 pairs of boots, 2,762,080 pairs of rubber and cashmerette gaiters, and 150,000 pairs of miscellaneous footwear, a total of 5,233,280 pairs.

RUBBER ATHLETIC GOODS FOR AMERICAN SOLDIERS.

Athletic goods costing $150,000 have been sent the Young Men's Christian Association for use by the American soldiers in France. This is believed to be the largest single order for athletic goods ever placed in this country, and perhaps in the world.

Approximately the same amount has been spent for athletic equipment for use in this country making a grand total of $300,000 spent by the association to provide sport for American soldiers. Owing to the size

French Official Photograph, International Film Service, Inc., N. Y.

RUBBER-CLAD AMERICAN SOLDIERS IN FRANCE.

(C) Committee on Public Information, Washington, D. C.

AN AMERICAN SOLDIER WITH RUBBER COAT AND BOOTS.

of the order, several of the items had to be divided among various manufacturers.

Among other items, the order called for 4,800 soccer balls, 2,400 basketballs and 3,600 footballs, with 900 extra bladders, making a total of 13,500 bladders, all of rubber.

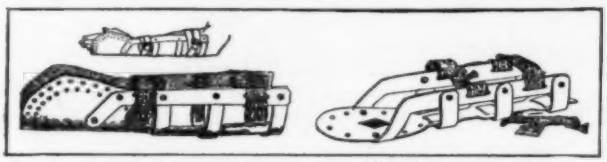
THE SURGICAL REQUISITES ASSOCIATION.

As all know, the patching up of the thousands of wounded requires splints, pads, leg and arm cradles and similar appliances by the million. So far, we have few American wounded and such are well supplied. But our British allies have wounded by the thousand and they need mountains of supplies.

PHILIP SCHIDROWITZ, PH. D., F. C. S.

For some two years past, therefore, certain English ladies have been working as a society called the Surgical Requisites Association. They have, in addition to their central London office and workshops, 27 depots and hundreds of workers, yet they cannot keep up with the demands. They have sent out more than 1,500,000 pieces and still there is cry for more. They need help and they need money.

Be it noted, by the way, all of the hundreds of ladies in this association are voluntary workers, really supervoluntary workers, for they not only give their services, but pay a shilling a week for the privilege. Many ladies also unable to work, become contributing members by paying a shilling a week.



VULCANITE ARM CRADLE KEEPING THUMB UP.

ANOTHER TYPE OF VULCANITE ARM CRADLE.

The American rubber trade finds in the association two points of interest: one that Dr. Philip Schidrowitz, the eminent chemist and author, is the honorary and unofficial rubber expert; the other is the fact that many of the surgical appliances designed for the association are made wholly or in part of rubber, the invention of working members.

With regard to the rubber articles produced by the association, Dr. Schidrowitz writes:

Dear Mr. Pearson:

As honorary and unofficial rubber expert to the S. R. A., I have been asked to reply to your letter of the 22nd November about the use of rubber in the various specialties devised by the Association. In the enclosed circular you will see several articles illustrated as being made with vulcanite. Soft rubber is used (in the form of disks or rings) on the soles of surgical boots, etc., and recently rubber sponge has been introduced for the purpose of making pressure pads inside boots and elsewhere when a certain amount of yielding, resilient pressure is required. For this a fairly substantial quality, such as latex sponge, is found suitable. A good deal of rubber in the form of proofed jaconet has also been employed for covering splint pads, etc. Some experiments were made with rubber for leg and arm baths, but it was found that these could be turned out a good deal cheaper from proofed papier-maché. In this connection it must be remembered that all the labor is voluntary and unpaid, and the conditions, therefore, are not quite the same as those obtaining in factory operations. Vulcanite, vulcanized fiber and ebonite could no doubt be used more extensively for many of the articles if standardized and factory made, but it must be borne in mind that only a proportion of the devices are of standard size and pattern, the majority being designed for the requirements of individual cases as they come; moreover, the ordinary factory operations of making up and vulcanizing involve serious difficulties as you know, outside the factory. A special hospital bed, the Balkan and double Balkan, has been designed by two members of the association and in this connection rubber is used in the form of proofed sheet, feeding bottles, feeding and irrigation tubes, etc.

With kind regards, believe me

Yours sincerely,

PHILIP SCHIDROWITZ.

SERVICE NOTES AND PERSONALS.

Major Raoul Gervais Lufbery, a famous member of the well-known Lafayette Escadrille and the premier American aviator in France, is a first cousin of George F. Lufbery, Jr., Elizabeth, New Jersey.

(C) Press Illustrating Service, Inc., N. Y.

MAJOR R. G. LUFBERY.

Major Lufbery was the first American to enlist in the French flying corps, and now holds the record for having shot down seventeen enemy airplanes. For these achievements and for his daring in many spirited air combats during which his own machine has often been damaged by German bullets which missed him only by inches, he has several times been mentioned in the orders of the day, and within short intervals has been decorated with the Legion d'Honneur, Medaille Militaire, Croix de Guerre with four palms, and the British Military Medal, in addition to a Chinese medal won before the war for flights in the Far East. He was the fifth American aviator to receive the Croix de Guerre, and his many admirers speak of him as the "ace" among the American aviators flying for France. Although an American living in Connecticut during part of his youth, Major Lufbery was born in Chauny, France, where the Lufbery & Chardonnier factory, manufacturing rubber substitute and sulphurets of antimony, was located before the place was looted and completely destroyed by the Germans.

Captain E. E. Buckleton, after a strenuous convalescence in the United States that included speaking at Red Cross rallies and at training camps, and other helpful work of that sort, has been called back to the colors and is now in London en route for the front.

Word has been received at the office of the Hamilton Rubber Co., Trenton, New Jersey, of the safe arrival in France of Samuel J. May, Jr., formerly foreman of the printing department of the plant. He is a member of the Sixth Engineering Corps.

Captain C. Livingston Waterbury, brother of the famous polo players, Monty and Larry Waterbury, is assigned to the Signal Corps, Aviation Section, and stationed at Mineola, Long Island, New York. The Waterbury family were formerly interested in the Waterbury Rubber Co., Brooklyn, that was later known as the New York Rubber Reclaiming Co., now out of business.

(C) Press Illustrating Service, Inc., N. Y.
CAPTAIN C. L. WATERBURY.

Lieutenant Frank Waldo, of the firm of E. M. & F. Waldo, New York City, has arrived at The Hague, Holland, where he has been assigned as assistant military attaché.

Captain Frederick R. Garcin, of the Coast Artillery, now stationed at Fort Barry, California, is a son of Edward H. Garcin, president of E. H. Garcin & Co., importers and exporters, New York City. He stands high in his profession and hopes soon to be on the firing line in France.

Richard Weil, known to crude rubber men and to the rubber plantation interests in all of the Far East, has enlisted and is assigned to the Embarkation Section, Army Transport Service, Quartermaster's Corps, at Newport News, Virginia.

RICHARD WEIL.

Two members of the office staff of the H. F. Taintor Manufacturing Co., New York City, are now in service. Lieutenant-Commander Starr Taintor, of the National Naval Volunteers, is stationed in the Navy's office at Chambers street and Broadway, New York City. Captain Herbert T. Spooner, 307th Infantry, United States Army, is at Camp Upton, Yaphank, Long Island.

Joseph K. Lambert, son of John A. Lambert, treasurer and general manager of the Acme Rubber Manufacturing Co., Trenton, New Jersey, was found physically fit for military service by the local draft board on January 31 and stands ready to join the colors. Mr. Lambert, who is connected with the automobile tire department of the Acme plant, had been previously rejected.

P. J. McFarland, assistant sales manager of the new Firestone line of rubber footwear, has entered the Ordnance Department of the United States Army.

R. J. Stokes, secretary of the Thermoid Rubber Co., Trenton, New Jersey, is a captain in the Home Guard of that city.

Wendell R. Davis, formerly for several years purchasing agent of the National India Rubber Co., Bristol, who has engaged in the Red Triangle work under the auspices of the Young Men's Christian Association, has arrived in France.

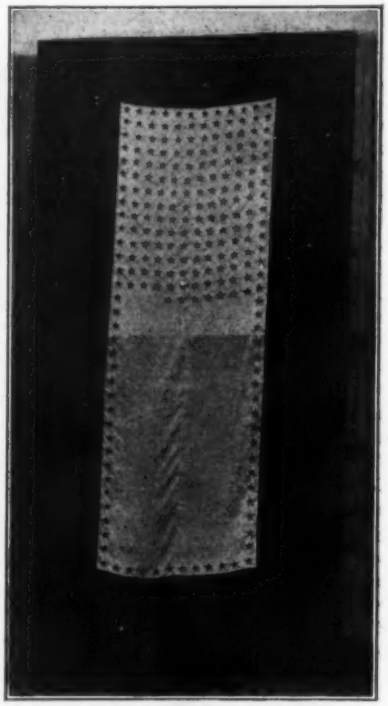
Raymond S. Farwell, formerly employed in the laboratories of the Revere Rubber Co., Providence, has been promoted to a sergeantcy in the Quartermaster's Department, U. S. A., and is stationed at Camp J. E. Johnston, Jacksonville, Florida. He enlisted in the Quartermaster's Department soon after the United States entered the war.

In order to insure service and every possible assistance to the Government during the war, the Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin, has opened a branch office at The Bradford, 18th and K streets, Washington, District of Columbia, in charge of H. W. Knowles.

SERVICE FLAGS.

Service flags are increasing, both in number and in size, as more executives and employes of the rubber companies enter various branches of national service.

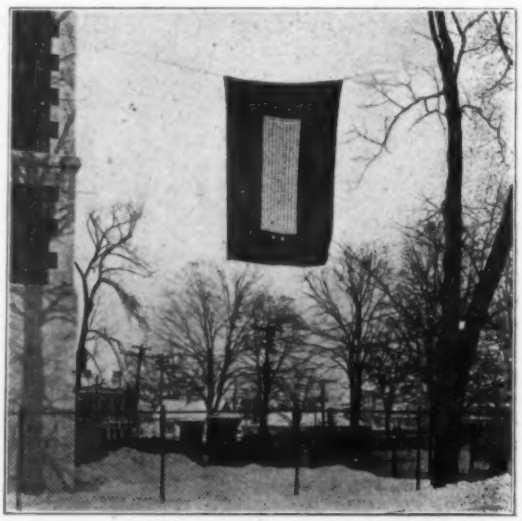
The Miller Rubber Co., Akron, Ohio, is flying a flag 12 by 25 feet, bearing 225 service stars. There is a border of stars completely around the flag, but only about half of the field is covered, and the last row is still incomplete, space having been left for additional stars as more employes enlist.



SERVICE FLAG OF THE MILLER RUBBER CO.

The Ajax Rubber Co., 1796 Broadway, New York City, has hung out from the second and top floor of its executive offices a service flag 6 by 10 feet, bearing 190 stars.

The flag suspended from the administration building of the Fisk Rubber Co., Chicopee Falls, Massachusetts, is 12 by 20 feet, and now bears 441 stars, to which others will be added almost daily. Below these are two white casualty stars, representing Charles Call, whose death was mentioned in the January issue of THE INDIA RUBBER WORLD, and Dale Kinter, to whom reference will be made next month.



FISK RUBBER CO. SERVICE FLAG.

LETTERS FROM THE FRONT

CHARLES B. WHITTELSEY, president of the Hartford Rubber Works Co., Hartford, Connecticut, has received the following cheerful and optimistic letter from a former employe, now an artilleryman with the American Expeditionary Forces in France:

SIRS:

Just a line to tell you I am very well and hope that this letter will find you likewise.

Upon receipt of this letter, you will know why I did not write sooner, as I have been on a long trip to France, but I will write more often now that I am here.

I am sending you a menu of what we had for dinner on Thanksgiving Day, and I hope that you will tell the boys that did not enlist not to be afraid to come to France, as they will not go without eats.

I will bring my letter to a close, wishing you a Merry Christmas and a Happy New Year.

PRIVATE PHILBERT RICHARDS.

And from the menu it is apparent that the men certainly did have enough to eat. Not only was it an extraordinarily fine dinner but the menu was elaborately printed, having letter of the battery and number of regiment on the outside cover. On the first inside cover were the Stars and Stripes, a field gun and a grouping of French artillery flags. The roster of the company occupies two pages.

The Thanksgiving dinner bill of fare was: roast turkey, giblet gravy, sage dressing, cranberry sauce, celery, candied sweet potatoes, mashed potatoes, stewed corn, green peas, mince pie, English plum pudding with brandy sauce, mixed nuts, fresh fruit, coffee, cigars, cigarettes and candy.

The Hartford Rubber Works now has 135 men in service, fifty-two of whom are in France. The executives of the company keep in close touch with their employes in service and each letter received at the office is given a personal reply.

A TRIP ACROSS THE WAR ZONE.

The following letter, written by a young American attached to one of the great troopships engaged in transporting our boys across the sea, is full of interest:

I shall try to tell you of my first trip across to the war zone and France in the service of Uncle Sam. We left our dock, where we had been loading stores and the troops, in the early evening, one ship after another slowly moving down the harbor and out to sea. Sometime later our convoy met us, for we were all together the next morning with destroyers and cruisers ahead and on our port and starboard sides.

The first couple of days were fine and the water was very calm. This was good for it gave the troops a chance to get their "sea-legs" on.

We are running a three-section watch in the engineer's force, each watch standing four hours on and eight off. I have the mid-watch, 12-4. Each man, whether coal-passer, fireman or water-tender in the fire-rooms, or oiler, machinist's mate or chief petty officer in the engine-rooms, has certain machines or apparatus to look after. Each compartment is separated from the others by a strong bulkhead; the only way through is by a doorway in which a vertical sliding door is raised or lowered. These doors are worked by hydraulic pressure acting upon a piston, and by throwing a lever one way or the other the doors are opened or closed. These doors are watertight and if no one can get to them in event of collision or torpedo, they can all be closed together by a master-valve in the pilot house. Lights in the pilot-house also show whether the doors are open or closed.

My station is in the lower steering-engine room, way down beneath the water line, just over and between the propellers. My duties are to look after the engine and telemotor, a device which is just a water piston that is moved back and forth by hydraulic pressure from the pilot-house where the steersman is. This telemotor moves the throttle-valve on a small engine which throws the rudder either way as required.

This compartment is as far aft as one can go, and as you know, the farther out on a seesaw you go, the more motion there is. So it's just that way on a vessel as she rides up and down. There are three distinct motions to a vessel, that I have found. First, there is a steady, throbbing motion as in a railroad train, due to the strokes of the engine; then there is the up-and-down motion of longer duration as the ship lifts on each wave, and then finally there is that side roll that surely is a stomach tickler. So a fellow standing watch there gets the extremes of these motions plus the smell of the oil and bilge water, and believe me, if I stand it the rest of this trip, I'll consider I am fully qualified for a submarine, which is the worst yet.

We have been fully prepared for any emergency and each man has a life-preserver for a pillow. The troops wear theirs at all times, and the crew, at the daily drills. The crew have fire-quarters, collision and abandon-ship drill every day and the gun crews practise on targets thrown overboard. The hitting is good and a U-boat has no chance at all if above water and within range.

There are a large number of lookouts posted, with two men at each post. They have to report every five minutes to show they are on the job. They are equipped with field-glasses and any suspicious phosphorescent wake is reported. That is about all that can be seen of a submarine when submerged or at night. Practically all the engineer's force come out on deck for a little fresh air, either going on or coming off watch, and they also look out over the water in search for other vessels. So there are lookouts aplenty, on watch or not, for the terrible (?) U-boats.

A few days before reaching France we met the convoy that came out to escort us. Our own boats! And they were some sight to see. They had all been camouflaged and were some of the oddest looking vessels imaginable with stripes of all colors running in all directions, making it seem as though one vessel was a half dozen small ones in the distance.

We made our trip without any trouble and arrived in France about two weeks after leaving our port. The tension relaxed and once more we could stay up nights after supper, for we had made the trip with all lights out from darkness till dawn. Even the lights in the engine-rooms were shaded lest some ray show out over the water. And it was some job we had traveling the decks at night from our bunk-rooms to the engine- and fire-rooms without breaking a nose or scraping shins in the dark.

We enjoyed our liberty in France, where sociability must have originated, for the people certainly were very good to us. It seemed as if water was considered bad to drink, for fine liqueurs of all kinds were sold at a very cheap price. It was hard to be understood but the shop-keepers were patient and we came back with all kinds of souvenirs and feeling fine under the belt though with much less cash than we went with.

Some articles were very cheap and so we bought and bought. There are so many different kinds of small French money that it seemed the more we spent, the more we had, until our francs and centimes gave out.

I cannot help speaking of the good work being done by the Y. M. C. A. It was the first place visited, for they exchanged our money for us and gave us more than equal exchange where the banks extracted 10 per cent for the same job. We received about $5.60 for $5 and then went out seeing and trying hard to buy out the town. Some came back with soldiers' and sailors' hats, different kinds of pins, badges, silk handkerchiefs, silk shirtwaists and even neck pieces of fur for presents to the dear ones at home. One fellow bought a pair of the wooden shoes which practically every one in the town wears.

The public market-place was quite interesting. Women run it and there appeared to be an abundance of vegetables and fish. There were very few young men in the town, but a large number of soldiers and sailors. It seemed as though no two uniforms were alike—different hats or coats or trousers, made in every color imaginable. The majority of the people appeared very poor and I know they appreciated our help. They even rowed way out in the harbor and came alongside begging for the boxes and wood that our supplies come in. And those they got, and lots of small change thrown over the side, besides.

After staying in France a number of days, we left one afternoon and put to sea at a good speed with our convoy which was waiting for us at the harbor entrance. The unofficial word was that we were going to England, and soon we found it to be so, for we swung around toward the northeast, and went up into the English Channel. The next morning we came up past the Isle of Wight with Portsmouth on our starboard side and up to Southampton, where we tied up at the docks for supplies.

On the way up, we passed the Netley Hospital, a very large place, and the big liner *Aquitania* which is now a hospital ship in the British Royal Navy. Hydroplanes and biplanes flew around us, coming from distant aviation fields. They did some fancy flying and waved to us as they coasted down almost to the water and then quickly climbed at a 45-degree angle, above us and over till lost in the distance.

The captain gave us liberty there from one till eight next morning. This offered a chance to see quite a bit of the country. Some of the boys even went to London to see the world-famous buildings and points of interest there. England is very strict in regard to food and drink. Meals cannot be had except at meal times and then only in limited quantity. The public houses are not open except from twelve to two-thirty and six to nine, and the alcoholic strength of all beers and liqueurs has been diluted. If anyone looks a little under the weather he gets no drink at all. And no bottled goods. This is strictly complied with and there are no drunks nor is there any danger of getting drunk. Unless a person has plenty of money there is no danger of getting fat from overeating, either.

The girl conductors on the tram cars are quite young but apparently realize their responsibility and do their work quickly and faithfully.

I was particularly impressed by the sight of so many cripples, soldiers who had done their bit! They were everywhere and the thumping of their canes, crutches and wooden limbs seemed to drown all other noise. But the English have become used to it.

I visited the Common where some of our Marines were camped. I noticed, on my way up to the Common, the memorial erected to the engineer officers of the *Titanic* who willingly stood by their posts and gave up their lives endeavoring to save the passengers and ship. This memorial was erected by their engineering friends all over the world and is a fitting testimonial to their faithful services.

As soon as twilight comes all the shops and stores draw down dark curtains and there's only a little sign on the door saying they are still open. All street lights are shaded and even the cars go by with curtains drawn. The fear of air raids is still strong, for London is only seventy-odd miles away. It would be some job for a stranger to get around at night. I could hardly find a restaurant for my supper after six o'clock. Every store and window looks alike. The stores all close at eight and the bars at nine, so the theaters are the only things open after that. Some job, I had, too, in the dark looking for the "Hippodrome," where a good variety show was playing.

After several days, we slipped out and made the run back to France one night. Arrived in France safely but led our British convoy a merry chase. We were in the lead practically all the time and there's no doubt in our minds but that we have the best and most efficient destroyers of the Allies, for we haven't seen anything yet anywhere near as good.

Two days later we put to sea and all knew where we were heading for. We had a strong convoy of our own destroyers to take us out. Several "planes" accompanied us for a couple of hours and then night came, and on we went, West! We had a number of distinguished people on board, several army and navy officers and diplomats, their wives and staff, coming back to the States.

The fourth day out was a fine warm day and quite a contrast to the radio reports about the blizzard that was striking the Eastern States. In mid-ocean, we had a nice little show, one evening. Several good boxing bouts were staged and after that movies and vocal selections followed, accompanied by our new orchestra which was recruited from among the crew. We have in the main dining hall a fine open space with balconies three decks high where a screen may be spread. This is one privilege we enjoy that cannot be had with the Fleet, for movies on a battleship are held on the main deck and are out of the question from October till April, as it is too cold and windy for them.

We have arrived safely now at the port from whence we sailed, after having been away for just 45 days, half of which time was spent in traveling.

Now I will close, hoping you will enjoy reading about an average trip of a troopship and the personal adventures of your friend.

EDWIN P. SIMPSON.

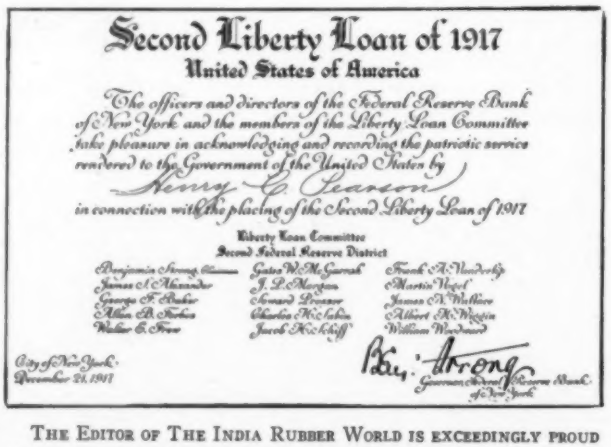
FROM A PRIVATE STATIONED FOR A TIME IN SCOTLAND.

We are working pretty hard at present, but the days are short, as it is not light until nearly 8 o'clock and is dark at five. We have plenty of good food, about the same as one would get on a farm at home. We have a good cook and live rather better than most of the units. He fed us last month at a cost of nine pence a meal, which is the lowest of any unit. Sugar and butter are scarce, but we have some good oleomargarine and like it pretty well.

I drove a party to —— two nights to plays performed in a village hall. They were Scottish plays and as all of the actors talked in the dialect it was good to me. A man came around with honey the other day and we had a feast. It was one and nine a pound (about 42 cents). As we get good pay, the people charge us well for what we buy. Wages here are about a pound a week so our pay looks like a fortune to them.

Some of the old folks were rather afraid of us at first. One old lady asked me if it was true that every American carried a pistol and had a lion with him. (One of the units has a bear as a mascot.)

M. S. ENGLISH.


Second Liberty Loan of 1917
United States of America
The officers and directors of the Federal Reserve Bank of New York and the members of the Liberty Loan Committee take pleasure in acknowledging and recording the patriotic service rendered to the Government of the United States by
Henry P. Pearson
in connection with the placing of the Second Liberty Loan of 1917
Liberty Loan Committee
Second Federal Reserve District
Benjamin Strong, Chairman
James J. Alexander
George F. Baker
Allen B. Forbes
Walter E. Frew
Gates W. McGarrah
J. P. Morgan
Howard Prosser
Charles H. Sabin
Jacob Rich
Frank A. Vanderlip
Martin Vogel
James N. Wallace
Albert H. Wiggin
William Woodward
City of New York
December 28, 1917
Benj. Strong
Governor, Federal Reserve Bank of New York

THE EDITOR OF THE INDIA RUBBER WORLD IS EXCEEDINGLY PROUD OF THE ABOVE TESTIMONIAL, TO THE EFFECT THAT HIS EFFORTS FOR THE SUCCESS OF THE SECOND LIBERTY LOAN WERE NOTED AND APPRECIATED.

Bowers' Specific Gravity Tables.

IN the August and September issues of THE INDIA RUBBER WORLD, the Bowers' tables for computing the approximate weights of disks and cylinders were published in full and also several samples were given to illustrate the method to be followed in making computations.

The table for square strips which follows is used in determining the weights of articles of dimensions convertible into regular measurements, such as washers, channel rubber, window sash packing, squilgees, gaskets and strips, cut from sheet, molded or formed by die. The range of the tables is from 1/64 to 3 inches for square strips of customary measurements.

STRIP TABLE.

The stated base of the square strip table is 62.6688 pounds per cubic foot.

The unit used is .0017 ounce equals a strip 1/64 inch square, one foot long. Specific gravity 1.00.

$$\frac{.0017 \times (64)^2 \times 144}{16} = 62.6688 \text{ pounds.}$$

Weight of one cubic foot of water 39.1 degrees F. Maximum density = 62.425 pounds. (Kent 1916 edition, page 27.) To convert the strip table into weights according to the above standard multiply by 0.9961+ or divide by 1.0039+.

The strip table is constructed to read from 1/64 inch up in the same manner as the disk and cylinder tables, e. g.:

1 1/64 inch	=	7.1825 ounces		
2		4		
2 1/32 inch	=	28.7300 ounces		
2		4		
4 1/16 inch	=	114.9200 ounces	=	7.1825 pounds
2				4
8⅛ inch	=			28.7300 pounds
2				4
16¼ inch	=			114.9200 pounds

The combined use of the disk or cylinder table with the strip table in one calculation will be found convenient; practically accurate results will be obtained.

The factors given for use with the cylinder table will also apply to the strip table.

SAMPLE.

1 1/16-inch square tubing—7/16-inch square hole. Specific Gravity 1.54.

COMPUTATION.

1 1/16 inch	=	7.8608 ounces
7/16 inch	=	1.3328
		6.5280
		1.54
		26112
		32640
		6528
		10.05312 ounces
		or 62 13/16 pounds per 100 feet

SAMPLE.

1 1/16-inch square tubing—7/16-inch round hole. Specific Gravity 1.54.

COMPUTATION.

1 1/16 inch	=	7.86080 ounces
7/16 inch	=	1.04272
		6.81808
		1.54
		2727232
		3409040
		681808
		10.4998432 ounces
		or 65⅝ pounds per 100 feet

SAMPLE.

1 1/16-inch round tubing—7/16-inch square hole. Specific Gravity 1.54.

COMPUTATION.

1 1/16 inch	=	6.14992 ounces
7/16 inch	=	1.33280
		4.81712
		1.54
		1926848
		2408560
		481712
		7.4183648 ounces
		or 46⅜ pounds per 100 feet

SAMPLE.

Channel rubber—½ inch x ¾ inch outside, ⅜ inch x ½ inch inside. Specific Gravity 1.63.

COMPUTATION.

½ inch x ¾ inch	=	2.6112 ounces
⅜ inch x ½ inch	=	1.3056
		1.3056
		1.63
		39168
		78336
		13056
		2.128128 ounces
		or 13 5/16 pounds per 100 feet

SAMPLE.

4⅛-inch square washer—2-inch square hole, ¼ inch thick. Specific Gravity 1.72.

COMPUTATION.

4⅛ inch	=	118.4832 ounces
2 inch	=	27.8528
		90.6304
¼ inch	=	3 feet
		271.8912
		1.72
		5437824
		19032384
		2718912
		467.652864 ounces
		or 29 3/16 pounds per gross

SAMPLE.

4⅛-inch square washer—2-inch round hole, ¼ inch thick. Specific Gravity 1.72.

COMPUTATION.

4⅛ inch	=	118.48320 ounces
2 inch	=	21.79072
		96.69248
¼ inch	=	3 feet
		290.07744
		1.72
		58015488
		203054208
		29007744
		498.9331968 ounces
		or 31 3/16 pounds per gross

SAMPLE.

Rectangular gasket—6 inch x 8 inch outside, 3 inch x 6 inch inside, ¼ inch thick, with six ½-inch round bolt holes. Specific Gravity 1.68.

COMPUTATION.

6 inch x 8 inch	=	20.88960 pounds
3 inch x 6 inch	=	7.83360
		13.05600
less six ½-inch bolt holes @.08512	=	.51072
		12.54528
¼ inch	=	3 feet
		37.63584
		1.68
		30108672
		22581504
		3763584
		63.2282112 pounds
		or 63¼ pounds per gross

APPROXIMATE WEIGHTS OF SQUARE STRIPS—SPECIFIC GRAVITY 1.00

COMPUTED BY GEORGE W. BOWERS

Basis—Cubic Foot = 62.6688 lbs. Avd.

Cross-section, Inches.	Ounces per Foot.	Cross-section, Inches.	Ounces per Foot.	Cross-section, Inches.	Ounces per Foot.
1/64	.0017	1 1/64	7.1825	2 1/64	28.2897
1/32	.0068	1 1/32	7.4052	2 1/32	28.7300
3/64	.0153	1 3/64	7.6313	2 3/64	29.1737
1/16	.0272	1 1/16	7.8608	2 1/16	29.6208
5/64	.0425	1 5/64	8.0937	2 5/64	30.0713
3/32	.0612	1 3/32	8.3300	2 3/32	30.5252
7/64	.0833	1 7/64	8.5697	2 7/64	30.9825
1/8	.1088	1 1/8	8.8128	2 1/8	31.4432
9/64	.1377	1 9/64	9.0593	2 9/64	31.9073
5/32	.1700	1 5/32	9.3092	2 5/32	32.3748
11/64	.2057	1 11/64	9.5625	2 11/64	32.8457
3/16	.2448	1 3/16	9.8192	2 3/16	33.3200
13/64	.2873	1 13/64	10.0793	2 13/64	33.7977
7/32	.3332	1 7/32	10.3428	2 7/32	34.2788
15/64	.3825	1 15/64	10.6097	2 15/64	34.7633
1/4	.4352	1 1/4	10.8800	2 1/4	35.2512
17/64	.4913	1 17/64	11.1537	2 17/64	35.7425
9/32	.5508	1 9/32	11.4308	2 9/32	36.2372
19/64	.6137	1 19/64	11.7113	2 19/64	36.7353
5/16	.6800	1 5/16	11.9952	2 5/16	37.2368
21/64	.7497	1 21/64	12.2825	2 21/64	37.7417
11/32	.8228	1 11/32	12.5732	2 11/32	38.2500
23/64	.8993	1 23/64	12.8673	2 23/64	38.7617
3/8	.9792	1 3/8	13.1648	2 3/8	39.2768
25/64	1.0625	1 25/64	13.4657	2 25/64	39.7953
13/32	1.1492	1 13/32	13.7700	2 13/32	40.3172
27/64	1.2393	1 27/64	14.0777	2 27/64	40.8425
7/16	1.3328	1 7/16	14.3888	2 7/16	41.3712
29/64	1.4297	1 29/64	14.7033	2 29/64	41.9033
15/32	1.5300	1 15/32	15.0212	2 15/32	42.4388
31/64	1.6337	1 31/64	15.3425	2 31/64	42.9777
1/2	1.7408	1 1/2	15.6672	2 1/2	43.5200
33/64	1.8513	1 33/64	15.9953	2 33/64	44.0657
17/32	1.9652	1 17/32	16.3268	2 17/32	44.6148
35/64	2.0825	1 35/64	16.6617	2 35/64	45.1673
9/16	2.2032	1 9/16	17.0000	2 9/16	45.7232
37/64	2.3273	1 37/64	17.3417	2 37/64	46.2825
19/32	2.4548	1 19/32	17.6868	2 19/32	46.8452
39/64	2.5857	1 39/64	18.0353	2 39/64	47.4113
5/8	2.7200	1 5/8	18.3872	2 5/8	47.9808
41/64	2.8577	1 41/64	18.7425	2 41/64	48.5537
21/32	2.9988	1 21/32	19.1012	2 21-32	49.1300
43/64	3.1433	1 43/64	19.4633	2 43/64	49.7097
11/16	3.2912	1 11/16	19.8288	2 11/16	50.2928
45/64	3.4425	1 45/64	20.1977	2 45/64	50.8793
23/32	3.5972	1 23/32	20.5700	2 23/32	51.4692
47/64	3.7553	1 47/64	20.9457	2 47/64	52.0625
3/4	3.9168	1 3/4	21.3248	2 3/4	52.6592
49/64	4.0817	1 49/64	21.7073	2 49/64	53.2593
25/32	4.2500	1 25/32	22.0932	2 25/32	53.8628
51/64	4.4217	1 51/64	22.4825	2 51/64	54.4697
13/16	4.5968	1 13/16	22.8752	2 13/16	55.0800
53/64	4.7753	1 53/64	23.2713	2 53/64	55.6937
27/32	4.9572	1 27/32	23.6708	2 27/32	56.3108
55/64	5.1425	1 55/64	24.0737	2 55/64	56.9313
7/8	5.3312	1 7/8	24.4800	2 7/8	57.5552
57/64	5.5233	1 57/64	24.8897	2 57/64	58.1825
29/32	5.7188	1 29/32	25.3028	2 29/32	58.8132
59/64	5.9177	1 59/64	25.7193	2 59/64	59.4473
15/16	6.1200	1 15/16	26.1392	2 15/16	60.0843
61/64	6.3257	1 61/64	26.5625	2 61/64	60.7247
31/32	6.5348	1 31/32	26.9892	2 31/32	61.3683
63/64	6.7473	1 63/64	27.4193	2 63/64	62.0177
1	6.9632	2	27.8528	3	62.6688

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SAMPLE.

4⅛ inch round washer—2 inch square hole, ¼ inch thick. Specific Gravity 1.72.

COMPUTATION.

4⅛ inches	=	92.69568 ounces
2 inches	=	27.85280
		64.84288
¼ inch	=	3 feet
		194.52864
		1.72
		38905728
		136170048
		19452864
		334.5892608 ounces
		or 20 15/16 pounds per gross

When extreme accuracy is not required the strip table may be used to determine the weight of square flange rings using average of circumference for length of cord.

SAMPLE.

Square flange ring—7⅞ inch diameter, 7⅜ inch hole, ¼ inch square flange.

COMPUTATION.

¼ inch square strip	=		.4352 ounces
7¾ inch average circumference	=	23.955 inches =	2 feet
			.8704 ounces

AERONAUTICS DIVISION S. A. E. GASOLINE HOSE SPECIFICATIONS.

TYPE NO. 2, COTTON INSIDE REINFORCED WITH WIRE.

THE specifications for type No. 2 are similar to those for type No. 1, which were published in THE INDIA RUBBER WORLD, February 1, 1918, with the exception of the second paragraph, which is as follows:

INNER TUBE.—The inner tube shall consist of a canvas tube supported by a helix of oil-tempered steel wire of not less than 0.020-inch diameter, spaced not less than five turns per inch. The rubber tube shall be placed between this inner cotton tube and the cotton plies.

The tests for types No. 1 and No. 2, provided in both specifications, are as follows:

DRY HEAT TEST.—A 3-inch piece of hose, after having been placed in an air oven at 132 degrees C. for two hours, must show, when cool, no tendency to crack, and must not be "tacky."

PERMEABILITY TEST.—A 14-inch length of hose is held vertically and plugged at the bottom. The upper end is fitted with a glass tube about 18 inches long. The hose so arranged is filled with gasoline to a head of 12 inches above the top of the acting length of the hose. The acting length of the rubber hose is 12 inches. The upper end of the glass tube is loosely closed with a cork. The specific gravity of the gasoline used in this test should be between 0.710 and 0.725 at 60 degrees F.; 65 per cent of it must distill at over 100 degrees C. from a distillation flask when the bulb of the thermometer is just below the side tube.

During the first 24 hours the level of the gasoline will fall with comparative rapidity. The gasoline loss is replaced by frequent additions from a known volume of gasoline, care being taken that the level of the gasoline in the glass tube does not fall by more than 3 inches at any time. The test is to last for 72 hours and the loss of gasoline during the third 24 hours must not exceed 100 cubic centimeters per square foot of the original internal surface of the hose.

IMMERSION IN GASOLINE.—A 3-inch piece of the hose is boiled for one hour (using a reflex condenser) in gasoline similar to that used for the permeability test. The gasoline is allowed to cool. Twenty-four hours later the test piece is removed from the gasoline and examined without delay, as follows:

The internal diameter at the point of greatest constriction is measured by means of rod gages. From this measurement the area of the bore is calculated. It must not differ from the original by more than 25 per cent.

The test piece is then cut longitudinally into halves, and the adhesion between rubber and cotton carefully tested. The adhesion must be of such a character that the rubber can be stripped from the cotton by hand only with difficulty.

IMMERSION IN OIL.—A 33-inch piece of the hose is immersed in oil, approved by purchasing office, at a temperature of 100 degrees C. for 8 hours, and for a further period of 24 hours at ordinary temperature. The oil is then wiped from the surface of the hose. The decrease of internal diameter shall be less than 10 per cent.

The flexibility and elasticity of the rubber must not be diminished and there must be no tendency of the rubber to separate from the cotton.

TEST PIECES.—The purchaser will decide where the tests are to be carried out. All test specimens are to be cut in the presence of the inspector and they are to be marked as he may direct. For the purpose of testing, a representative sample will be cut from each 1,000 feet of hose or fraction thereof, and the tests will proceed in accordance with the instructions from the purchasing office.

REJECTIONS.—If any sample fails to comply with any of the above tests, the hose represented thereby will be rejected.

MARKING.—Accepted and rejected material must be marked as directed by the inspector.

DEPRECIATION.—The contractor must bear the cost of the depreciation in value of any rejected material on account of test pieces being cut therefrom.

REJECTED MATERIAL.—The contractor must not supply any material previously rejected by any government department, without giving full written particulars of the previous rejection to the inspector who is inspecting this specification.

GOODRICH TIRE TESTERS INVESTIGATE SOUTHERN ROADS.

The tire-testing fleet of fifteen automobiles belonging to The B. F. Goodrich Co., Akron, Ohio, is performing national and patriotic functions this year in connection with the transportation crisis. The South this year is going to use the motor truck on a scale more extensive perhaps than any other section of the country. The railroads are crowded with supplies for troops in

WINTER IN DIXIE AS FOUND BY THE GOODRICH TIRE-TESTING FLEET.

southern cantonments, and producers on whom the north must depend for early vegetables and fruits, must resort to automobile. Difficulties arise, though, in road conditions, and the Goodrich company has undertaken to gather data that will be of immense aid to producers. Every town and city along the line of travel will be informed of the condition of the highways, and the best mode of travel between farms and the nearest point of distribution and shipment. Farmers also will be advised and instructed on the upkeep of their tires.

The cruise of the tire-testing fleet will take the automobiles over approximately 150,000 miles of roads south of Mason and Dixon's line during the next three months.

Foreign Import Duties on Boots and Shoes.

THE following table, corrected to February 1, 1918, by the Bureau of Foreign and Domestic Commerce shows the foreign import duties on rubber boots and shoes of all descriptions, imported into the various countries from the United States.

Owing to the frequency of tariff changes the figures and information given in this table should be periodically verified. It is also advised that small trial shipments be made in order to test the rates prior to sending more extensive shipments.

In the first column is given the country, while the next column contains the articles with notes regarding surtaxes, basis of rates, etc., The third column specifies whether the weight is to be taken as gross or net and the last gives the ad valorem duty or the rate of specific duty in United States currency.

Due to the restrictions upon importations of rubber manufacturers in France, Russia, and the United Kingdom, it is necessary for the foreign importer to secure a license before making shipments to those countries.

Countries.	Articles and Remarks.	Weight.	Duty (U. S. Currency).
EUROPE:			
Austria-Hungary	Shoemakers' wares, with textile goods, per 100 pounds	Net	$11.05
Belgium	Manufactures of india rubber, ad valorem	...	10%
Bulgaria	Ordinary rubber boots and shoes (galoshes), per 100 pounds (includes 20 per cent surtax)	Net	$10.51
	Other rubber boots and shoes, per 100 pounds (includes 20 per cent surtax)	Net	21.01
Denmark	Rubber boots and shoes, with textiles, per 100 pounds—including inner packing	Legal	6.03
France	Rubber footwear lined with felt, wool, or any partly woolen cloth, per 100 pounds	Net	13.13
	Rubber footwear lined with cotton, hemp, or flax cloth, per 100 pounds	Net	10.51
	Footwear with soles of rubber, per pair	...	0.14
Germany	Footwear, with or without rubber soles—Unvarnished, per 100 pounds	Net	7.56
	Varnished, per 100 pounds	Net	8.64
Great Britain	Manufactures of rubber	...	Free
Greece	Galoshes of rubber, per 100 pounds	Net	$30.78
Italy	Rubber footwear, lined or trimmed with fabrics, per 100 pairs	...	38.60
	Other rubber footwear, per 100 pounds	Net	4.38
Netherlands	Rubber footwear, ad valorem	...	5%
Norway	Rubber footwear, per 100 pounds	Net	$12.16
Portugal	Rubber footwear, per 100 pounds	Net	19.22
Roumania	Rubber footwear, per 100 pounds	Legal	10.51
Russia	Rubber footwear, per 100 pounds	Net	26.35
Servia	Rubber footwear, per 100 pounds	Net	12.26
Spain	Rubber footwear, per 100 pounds	Net	26.26
Sweden	Rubber footwear, per 100 pounds	Net	14.59
Switzerland	Rubber footwear, per 100 pounds	Gross	2.63
Turkey	Rubber galoshes, boots and shoes	Net	10.50
NORTH AMERICA:			
Canada	Rubber boots and shoes, ad valorem, including war tax (7½ per cent) Imports of articles invoiced at prices less than the market value in the country from which exported, are liable to a "dumping" duty if such articles are also made in Canada.	...	32½%
Newfoundland	Footwear and all manufactures in part or in whole of india rubber or gutta percha, ad valorem, including 10 per cent surtax	...	44%
CENTRAL AMERICA:			
Costa Rica	Rubber footwear, per 100 pounds	Gross	$21.09
Guatemala	Boots and shoes, and overshoes of rubber or rubberized cloth, per 100 pounds	Legal	46.49
Honduras	Rubber boots, per 100 pounds	Gross	65.44
	Footwear of rubberized cloth, per 100 pounds	Gross	21.81
Mexico	Footwear of rubber or cloth and rubber, including variable surtax taken as equivalent to 3 per cent of the duty, per 100 pounds	Legal	23.29
Nicaragua	Footwear of rubber such as waterproof boots and shoes, per 100 pounds	Gross	41.00
Panama	Rubber footwear, ad valorem	...	15%
Salvador	Rubber footwear, per 100 pounds	Gross	$46.14
WEST INDIES:			
Cuba	Rubber footwear with cotton fabrics, per 100 pounds	Legal	11.82
Santo Domingo	Rubber footwear	Net	11.35
St. Vincent	Manufactures of rubber, ad valorem	...	17.2%
Virgin Islands	Imports from the United States	...	Free
SOUTH AMERICA:			
Argentina	Rubber footwear—includes surtax of 7 per cent—duty based on valuation of $54.72 per 100 pounds	...	47%
	Footwear of cloth and rubber, whole sole measures 25 centimeters (9.84 inches) or less, duty based on valuation of $2.90 per dozen, includes surtax of 7 per cent of valuation	...	47%
	Same footwear, larger sizes, duty based on valuation of $6.76 per dozen, includes surtax of 7 per cent	...	47%
Bolivia	Rubber footwear for men, surtax of 15 per cent is included, based on valuation of $14.00 per dozen pairs	...	51.75%
	Rubber footwear for women and children: Overshoes, rubbers, boots, lined or not, including surtax of 15 per cent, based on valuation of $0.56 per pound, legal	...	46%
	Footwear for women and children with exterior lining, with or without interior lining, including surtax of 15 per cent, based on valuation of $0.88 per pound, legal	...	46%
Brazil	Rubber footwear—nominally 3 milreis per kilo.—per 100 pounds	Legal	$58.66
Chile	Rubber footwear of all kinds, per 100 pounds	Net	33.11
Colombia	Rubber footwear, including surtax of 7 per cent of duty, per 100 pounds	Gross	48.53
Ecuador	Rubber footwear, per 100 pounds	Net	30.02
Paraguay	Rubber footwear, with sole measuring 25 centimeters or less, includes surtax of 1½ per cent of valuation, based on valuation of $5.79 per dozen pairs	...	63.5%
	Rubber footwear of larger sizes, based on valuation of $11.58 per dozen pairs	...	63.5%
Peru	Rubber footwear, including weight of inner packing; at ports of Callao, Salavery, Paita and Pisco, surtax of 10 per cent, per 100 pounds	Legal	$32.76
	At other ports—surtax of 8 per cent, per 100 pounds	Legal	32.18
Uruguay	Rubber footwear, based on valuation of $5.17 per dozen pairs—surtax of 14 per cent of valuation included	...	62%
Venezuela	Rubber footwear, including surtax of 56.55 per cent, per 100 pounds	Gross	$34.26

ASIA:			
Ceylon	Rubber footwear, ad valorem	...	7.5%
China	Rubber boots, per dozen pairs	...	$0.73
	Rubber shoes, per dozen pairs	...	0.18
Japan	Rubber boots, per 100 pounds	Net	18.82
	Rubber shoes, per 100 pounds	Net	21.79
	Rubber overshoes, per 100 pounds	Net	19.43
OCEANIA:			
Australia	Galoshes, rubber sand boots and shoes, and plimsolls, ad valorem	...	30%
	Rubber gum and wading boots, ad valorem	...	10%
New Zealand	Rubber footwear, ad valorem	...	34¼%
AFRICA:			
South Africa	Rubber footwear, ad valorem	...	20%
With a minimum per pair of—			
	Men's	...	$0.18
	Women's	...	0.12
	Children's	...	0.06

Legal weight is not uniformly construed, but generally includes the weight of the immediate packing or container, though in some countries fixed tare allowances are made. In Argentina, Bolivia, Paraguay, and Uruguay, the duties are to be computed upon the official valuations at the rates given in the last column.

Foreign Import Duties on Rubber Tires.

THE following table, corrected to February 1, 1918, by the Bureau of Foreign and Domestic Commerce shows the foreign import duties on rubber tires of all descriptions imported into the various countries from the United States.

The column marked "Weight" shows whether duties are levied on net or gross weight, or include simply the inner packings. The next two columns give the rate of the duty for each one hundred pounds in United States currency or the rate per cent ad valorem.

In the following monograph the surtaxes have been included and the converted rates therefore indicate the actual duty payable.

Certain charges such as warehousing, customs handling, local taxes, revenue stamps, etc., are not included. The rates of duty shown, including the surtaxes as noted, should therefore be regarded as the minima. As changes in duties are likely to occur at any time, frequent verification of these figures is advised.

Due to the restrictions upon importations of rubber manufactures in France, Russia and the United Kingdom, it is necessary for the foreign importer to secure a license before making shipments to those countries.

COUNTRIES.	Weight.	Rate per 100 Pounds, U. S. Currency.	Rate Per Cent—Ad Valorem.
Canada	.....	.....	42.5
(Ad valorem duties are based on the fair market value of the articles when sold for home consumption in the country whence exported direct to Canada.)			
Central American States—			
British Honduras	.....	.....	15
(Duties based on price in the port of export.)			
Costa Rica	Gross	$4.22	.....
(In addition, there is a wharfage tax of 10.5 cents per 100 pounds.)			
Guatemala	Gross	7.21	.....
(A new tariff was adopted in 1917, but the enforcement has been indefinitely postponed.)			
Honduras	Gross	4.28	.....
Nicaragua—			
Atlantic ports—Auto tires	Gross	3.81	.....
Solid tires	Gross	2.86	.....
Motorcycle tires	Gross	5.72	.....
Pacific ports—Auto tires	Gross	4.59	.....
Solid tires	Gross	3.36	.....
Motorcycle tires	Gross	13.78	.....
(A surtax of 12½ per cent of the duties is included.)			
Panama	.....	.....	15
Salvador	Gross	13.81	.....
(A surtax of 12½ per cent of the duty is included.)			
Hawaii	.....	.....	Free
(Imports from foreign countries are subject to the provisions of the United States tariff.)			
Mexico—Auto and motorcycle tires	Gross	16.94	.....
Bicycle tires	Legal	45.18	.....
(Not including variable paper surtax.)			
Newfoundland	.....	.....	49.5
(A surtax of 10 per cent of the duty is included.)			
West Indies—			
British—			
*Antigua	.....	.....	13.33
†Bahamas	.....	.....	22
*Barbados	.....	.....	11.25
*Dominica	.....	.....	12.5
*Grenada	.....	.....	10
Jamaica	.....	.....	16.66
(Tires for motor vehicles are subject to a surtax of 20 per cent of the duty, which is to be added.)			
*Montserrat	.....	.....	13.33
*St. Christopher-Nevis	.....	.....	11
*St. Lucia	.....	.....	16.5
*St. Vincent	.....	.....	17.2
*Trinidad and Tobago	.....	.....	10
Turks and Caicos Islands	.....	.....	10
Virgin Islands	.....	.....	10
Cuba	.....	.....	25
Dominican Republic	Net	$36.29	.....
Dutch Colonies	.....	.....	3
French—			
Guadeloupe	.....	.....	6
Martinique (rates not specified)	.....	.....	.....
(Imports of other than French origin pay also the regular French import duties.)			
Haiti	.....	.....	22.24
Porto Rico	.....	.....	Free
(Imports from foreign countries are subject to the provisions of the United States tariff.)			
Virgin Islands of the United States	.....	.....	Free
(Imports from foreign countries are temporarily subject to the duties formerly in force in the Danish West Indies.)			
SOUTH AMERICA:			
Argentina—Auto and solid tires	Legal	10.51	.....
Bolivia	Gross	20.29	.....
Brazil—Auto tires of Para rubber	.....	.....	12.51
Other auto tires	.....	.....	28.89
Motor truck tires	.....	.....	12.51
Chile	Gross	9.93	.....
Colombia	Gross	0.97	.....
Ecuador	Legal	9.93	.....
Guiana—British	.....	.....	16.5
(When imported from the United Kingdom, Canada or Newfoundland, admitted at a reduction of one-fifth of the duty.)			
Dutch	.....	.....	10
French	.....	.....	5
(The regular French import duties are also collected on goods not of French origin.)			
Paraguay—Auto tires	Legal	38.08	.....
Bicycle and motorcycle tires	Legal	47.60	.....
Peru—Auto tires	Gross	24.28	.....
Other tires	Legal	36.42	.....
Uruguay	.....	.....	45
Venezuela	Gross	10.28	.....
EUROPE:			
Austria-Hungary	Net	13.81	.....
Belgium—Solid tires	Net	5.69	.....
Auto tires (Casings only.)	Net	10.16	.....
Inner tubes	Net	14.88	.....
Bulgaria—Tires and tubes	Net	5.25	.....
Denmark—Auto tires	Net	6.08	.....
Solid tires	.....	.....	Free
Faroe Islands	.....	.....	Free
Finland—Auto tires	Net	9.55	.....
Inner tubes	Net	5.30	.....
France—Auto tires and tubes	Net	13.13	.....
Solid tires	Net	8.75	.....
Cycle tires	Net	21.89	.....
Germany—Auto tires	Net	6.48	.....
Inner tubes	Net	6.48	.....
Gibraltar	.....	.....	Free
Greece	Net	1.03	.....
Iceland	Net	0.24	.....
Italy—Auto tires and tubes	Net	5.25	.....
Malta	.....	.....	5
Netherlands	.....	.....	5
Norway—Auto tires	Net	3.65	.....
Motorcycle tires	Net	3.65	.....

* When imported from the United Kingdom, Canada or Newfoundland, admitted at a reduction of one-fifth of the duty. The cost of packing is excluded, except in Dominica, St. Lucia and Grenada, where it is included.
† A surtax of 10 per cent is included.

COUNTRIES.	Weight.	Rate per 100 Pounds, U. S. Currency.	Rate Per Cent—Ad Valorem.
Portugal	Net	1.60	.....
(Conversion to U. S. currency is based on the latest quotation of the paper milreis.)			
Roumania—Auto tires	Legal	9.06	.....
Solid tires	Legal	4.90	.....
Russia—Cycle tires	Net	18.82	.....
Auto tires	Net	32.09	.....
Servia	Net	10.51	.....
Spain—Solid tires	Net	17.51	.....
Casings and inner tubes	Net	23.64	.....
Sweden—Auto tires	Net	14.59	.....
Solid tires	Net	9.73	.....
Switzerland—Auto tires	Gross	0.44	.....
Solid tires	Gross	0.09	.....
Turkey	.....	15.00	.....
United Kingdom	.....	.....	Free
ASIA:			
British—			
Aden	.....	.....	Free
Ceylon	.....	.....	7.5
(Duty based on wholesale cash price in bond, less trade discount at the port of entry.)			
Cyprus	.....	.....	10
(Duty based on export price with addition of cost of transport [including insurance] to the port of final discharge.)			
Federated Malay States	.....	.....	10
Hongkong	.....	.....	Free
India	.....	.....	7.5
(See note for Ceylon.)			
North Borneo	.....	.....	10
Sarawak	.....	.....	Free
Straits Settlements	.....	.....	Free
China	.....	.....	5
Chosen (Korea)	.....	.....	8
Dutch East Indies	.....	.....	10
French Indo-China	.....	.....	.....
(Imports from France are admitted free of duty, while imports from other countries are subject to the rates prescribed by the customs tariff of France.)			
Japan (including Formosa)—Auto tires	.....	.....	25
Cycle tires	Net	$42.92	.....
Persia	.....	.....	10
Siam	.....	.....	3
AFRICA:			
Abyssinia	.....	.....	10
Belgian Congo	.....	.....	10
British—			
Mauritius	.....	.....	12
Nigeria	.....	.....	Free
Union of South Africa	.....	.....	20
(Duty based on the current value for home consumption at the place of purchase, including value of packing and agent's commission if it exceeds 5 per cent.)			
Zanzibar	.....	.....	7.5
(The dutiable value of imports from Europe or America is taken to be the cost price [with charges], increased by 5 per cent or the invoice price [exclusive of charges], increased by 15 per cent.)			
Egypt	.....	.....	8
(In Alexandria a wharfage tax of one-half of 1 per cent is added. At other ports different rates are imposed.)			
French Algeria	.....	.....	.....
(Imports from France are admitted free of duty, while imports from other countries are subject to the rates prescribed by the customs tariff of France.)			
Italian—			
Eritrea	.....	.....	8
Libia	.....	.....	11
Somaliland	.....	.....	15
Liberia	.....	.....	12.5
Morocco	.....	.....	12.5
OCEANIA:			
British—			
Australia	.....	.....	35
(Duty based on fair market value F. O. B. at port of export, plus 10 per cent. On casings weighing over 2½ pounds and inner tubes over 1 pound each, 48.6 cents per pound, if higher than the ad valorem rate.)			
New Zealand	.....	.....	1
Guam	.....	.....	Free
(Imports of foreign origin are taxed 25 per cent of their value.)			
Philippine Islands	.....	.....	Free
(Imports of foreign origin are taxed 25 per cent of their value.)			
Tutuila	.....	.....	10

Legal weight is not uniformly construed but generally includes the weight of the immediate packing or container, though in some countries fixed tare allowances are made.

RECENT CHANGE IN FOREIGN DUTIES ON RUBBER GOODS.

The Bureau of Foreign and Domestic Commerce states that the most important change recently made in foreign duties on rubber goods is that contained in the Brazilian Budget Law for 1918. According to this law, rubber automobile tires made of fine Para rubber will continue to be admitted at a rate of nominally 5 per cent, which is actually 12.51 per cent. The same rate will apply to motor-truck tires of all kinds, but automobile tires not of Para rubber will be dutiable at a rate equivalent to 28.89 per cent ad valorem. There is also a provision for the refund of 95 per cent of the import duties on rubber goods in general, if made of fine Para rubber, and the tests and markings to be applied are specified.

A new surtax of 12½ per cent of the duties in Nicaragua slightly increases the duties there.

It is not certain whether the free admission of automobile tires in Paraguay is continued or not, as the most recent tariff provisions merely provide for the free admission of automobiles and motor trucks without specifying accessories or parts. It is improbable that tires are admitted free.

THE STANDARDIZATION OF DRUGGISTS' SUNDRIES.

THE need of further standardization in the manufacture of druggists' sundries is forcefully expressed by Raymond J. Fries, of the Davol Rubber Co., Providence, Rhode Island, in the following manner:

First among the many good things that will be brought about in the rubber industry as a result of the present need for increased production is the standardization of products.

This is particularly true in the manufacture of druggists' sundries, where creation in the past has run riot. The shapes, styles, colors and trimmings of the various water bottles and fountain syringes produced by any one factory, are so varied that in comparison a millinery shop would look like a standardized tool display.

As a matter of fact, up to the present time there has been very little done toward manufacturing along standard lines. The plan followed has been to produce something different from the other fellow and to doll it up so as to catch the eye of the retail merchant and the consumer, without regard to the use the article was intended for or the service it should render. One catalog of a leading house issued two years ago, listed one style of water bottle and offered to supply it in fourteen different assorted colors and combinations of colors.

It is much easier to manufacture one hundred gross of a certain style bottle or bag than five gross each of twenty different styles. Not only is there no need for twenty different styles, but the saving to all concerned is considerable. The one style can be made not only at a less proportionate cost, but it can and will be sold for less, and the price to the consumer, whether government, hospital or individual, will be less.

The inflated air-cushions or more commonly called invalid rings can also be greatly reduced and standardized in the matter of sizes. Until very recently the manufacturers listed fifteen different sizes ranging from seven to twenty-one inches in diameter. A careful record was kept of the sales with the result that the numbers now listed have been reduced to five sizes ranging from twelve to twenty inches. Instead of producing sizes varying by one inch the graduations have been made two inches and the present sizes amply cover all requirements.

Now that the public has become better educated as to the many uses of druggists' rubber goods, the manufacturer finds it necessary to increase the volume of production and in order to do this along economical lines it follows that duplications in styles and varieties of numbers must be reduced. As a matter of fact, the pendulum has already started to swing back and goods turned out from now on will have more of the appearance and the stability of the goods produced thirty to forty years ago by the pioneers of the rubber industry. A standard has already been established on elastic bands, bandages, catheters, colon tubes, abdominal coils, air-pillows, atomizer bulb sets, bed pans, dental dam, Kelly operating cushions, politzer bags, rectal tubes, syringe tubing, water-beds, and pure gum tubing, as well as many less important articles.

Through standardization the factory gains by being able to run larger batches of the various stocks required and by being able to educate the help to a greater degree of efficiency and by not being required to carry such a varied assortment of goods in stock. The cost department has less work to do and supplies such as paper boxes, labels and cases can be purchased in larger quantities and along more standard lines. The salesmen have fewer samples to carry, and their orders for individual numbers are greater. The jobber and the retailer are both helped along lines just as advantageous as those the factory enjoys, while the public gets better merchandise at less money and is not confronted by a motley assortment that tends to befog the purchaser's decision.

What the Rubber Chemists Are Doing.

DEPOLYMERIZATION AND OXIDATION OF RAW RUBBER.[1]

I. IMPORTANCE OF THE PROCESS OF DEPOLYMERIZATION AND OXIDATION.

IN previous communications it has already been mentioned that the viscosity does not exclusively depend on the size of the particles, *i. e.*, the degree of polymerization, but also on their cohesion. But, as the latter itself depends on the size of the particles, "after a certain lapse of time, and at a constant temperature," the viscosity may virtually be accepted as a measure for the degree of polymerization.

After what has been stated respecting the signification of the viscosity, it will be clear that exterior circumstances may be of much importance on account of their influence on the degree of polymerization. Depolymerization always takes place in the factory before vulcanization, as well as when making rubber solution.

It is of importance to point out that Van Rossem has proved that "oxidation" of rubber can begin only when the viscosity has fallen below a definite figure, called the critical viscosity. This important fact was connected with the "tackiness" of rubber, about which he demonstrated that both polymerization and oxidation take place one after the other.

The practical importance of the study of tackiness has diminished since certain wild rubbers such as Congo and *Castilloa*, which often showed strong inclination to become tacky, are now chiefly supplanted by *Hevea* plantation rubber presenting this propensity in a much smaller degree. Moreover, by improving the work in the field and also the manufacture of crêpe and sheet, the chance of tackiness has been reduced to a minimum. Scientifically, tackiness is a phenomenon the study of which remains of great importance.

II. DEPOLYMERIZATION OF RUBBER.

The following possible causes for the depolymerization of raw rubber are known: mechanical treatment, heating, exposure to light chemical influences. It is by no means excluded that other circumstances will be found having the same effect.

1. MECHANICAL TREATMENT.—The influence of mechanical treatment cannot be entirely separated from that of heating, as during plasticating a considerable part of the kinetic energy of friction is transformed into heat. Efficient cooling, however, can cause the temperature to be only slightly raised so that its influence is small compared with that of the mechanical treatment.

Bernstein in his investigation tested, under exclusion of oxygen, rubbers whose botanical origin varied considerably, and the depolymerization was measured with a Frank-Marckwald viscosimeter. After prolonged treatment the same viscosity was found for the different rubbers. Bernstein even arrived at the same figure through the action of heat and light. From this he drew the conclusion that different kinds of rubber finally arrive at an identical condition after having been subjected to all possible influences causing depolymerization.

The Institute has carried out only preliminary experiments on depolymerization through mechanical treatment, of which the following is a résumé.

The viscosity of mechanically treated rubber measured at a concentration of one per cent decreases very rapidly after starting plasticating, which decrease becomes much slower after some time. At the expiration of the normal period of mechanical treatment, plasticating and mixing with sulphur on normally heated rolls taking about ten minutes, the strong decrease of the viscosity may be taken as finished. Apart from the time of plasticating and the temperature of the rolls, their distance apart is probably of great importance for the velocity of the depolymerization process. Prolonged plasticating, up to 80 minutes, of two First latex crêpe rubbers, with greatly varying initial viscosity, showed that the viscosity of ten per cent solutions had become identical. The low viscosity made the employment of such a high concentration both possible and desirable. This observation fully confirms the conclusion of Bernstein as to the depolymerization through mechanical treatment for *Hevea* plantation rubber.

Van Heurn has investigated how far "washing" of raw Congo rubber influences its viscosity. The washing was done with cold water, continued till the rubber was clean. It was notably essential as to which way the raw (moist) rubber and the washed rubber were dried, before the viscosity was measured. Only drying in a vacuum dessicator furnished trustworthy results. For the perfectly dry rubber he found, before washing, a viscosity number of 117, and after washing, 84.

Fol investigated the viscosity of normal and overprolonged plasticating on the mixing rolls, together with possible influence of such treatment on the percentage of acetone extract, moisture and ash. The results of the tests made with hard fine Para and with First latex *Hevea* crêpe are tabulated below.

INFLUENCE OF PLASTICATING ON HARD FINE PARA.

	Per Cent.			
	Acetone Extract.	Moisture.	Ash.	Viscosity.
Washed and air dried	2.71	1.27	0.46	72.1
After 10 minutes' plasticating	2.78	0.27	0.45	24.8
After 15 minutes' plasticating	2.62	0.07	0.37	15.2

INFLUENCE OF PLASTICATING ON FIRST LATEX HEVEA CRÊPE.

	Per Cent.			
	Acetone Extract.	Moisture.	Ash.	Viscosity.
Raw product	3.62	0.43	0.31	49.6
After 10 minutes' plasticating	3.57	0.19	0.55	20.4
After 15 minutes' plasticating	3.66	0.14	0.53	16.4

The great influence on the viscosity of plasticating on slightly heated mixing rolls can be clearly detected in these tables. It is also evident that beyond the normal time of ten minutes this influence is by no means finished. Whereas the percentage of acetone extract and of ash is not altered, that of moisture is diminished, an occurrence which, as will be shown later on, is not without importance for the results of the vulcanization.

2. HEATING.—Rubber is depolymerized by heating in solution as well as in the solid state. The higher the temperature the more rapid this process. Numerous tests were made with a solution of about one per cent First latex crêpe, heated at 130 degrees C. Van Rossem discovered and confirmed for solid rubber the notable fact that the depolymerization of a rubber solution in the presence of oxygen takes place more rapidly than in the presence of other gases, such as carbon dioxide, hydrogen, and nitrogen. During the depolymerization no absorption of oxygen could be detected, although the apparatus was so constructed that even a slight absorption could be traced. Apparently the oxygen acts as a catalyst. Whether the oxygen has an accelerating effect on the polymerization through influences other than heating, still remains to be tested, but may be taken as probable.

The investigation by Van Heurn as to the influence of washing on the viscosity of Congo rubber afforded an opportunity of testing the result on the viscosity, caused by drying at 50 degrees C. A technical interest attached to this test, as in the drying-houses hot air is usually applied, and a diminishing viscosity during the drying process is most certainly inadvisable.

The rubber was cut up finely; one part was dried in a drying-

[1] Communication of the Netherlands Government Institute for Advising the Rubber Trade and the Rubber Industry.

stove at 50 degrees C. for three and a half hours, and the other part was dried in a vacuum dessicator above sulphuric acid for two days (to constant weight). The remainder of the crêpe was hung up for 13 days in order to give it the opportunity to recover. An average sample from this was cut up finely, one part was heated for five hours at 50 degrees C. in a drying-stove, and the other part dried above sulphuric acid in vacuum for three days.

The viscosity numbers obtained with the different samples were found as follows:

INFLUENCE OF DRYING AT 50 DEGREES C. ON THE VISCOSITY OF CONGO RUBBER.

Congo rubber, raw product, dried in vacuum, viscosity number 117.

The same crêped, immediately after washing, dried in vacuum, viscosity number 84; dried at 50 degrees C., viscosity number 68.2.

Same crêpe, 13 days after washing, dried in vacuum, viscosity number 72; dried at 50 degrees C., viscosity number 60.5.

Van Heurn concludes from these figures that drying at 50 degrees C. diminishes the viscosity and consequently that drying at that temperature in general is not to be regarded as injurious, in opposition to Morgan, who only found a decline in the mechanical properties (elasticity, recovery, etc.) after drying at temperatures above 50 degrees C. Van Heurn is careful to point out that his tests were made with Congo rubber, whereas those of Morgan relate to *Hevea* plantation rubber. Further, that storing for 13 days does not improve the viscosity, but, on the contrary, causes a slight decline. It should, however, be noticed that the washed crêpe was hung in a room with diffused daylight, which may possibly have been of influence.

Another investigation by Van Heurn yielded some very remarkable results as to the influence of heating rubber, both in carbon dioxide as well as in air, on the degree of polymerization. A sample of rubber was divided into three parts. The first part was retained as it was, the other two were each put into a glass cylinder through which a slow current of washed and dried carbon dioxide was conducted and which was heated in a drying-stove. After the air had been fully displaced by the carbon dioxide, heating was started, one part being heated for four and the other for eight hours at 130 degrees C. After this, benzene solutions were made in order to carry out viscosity measurements. It was soon evident that whereas the original sample dissolved rapidly, both the heated parts left considerable residues behind, which did not change in quantity after one and a half days' shaking. This residue was especially considerable for the part heated for four hours and a trifle less for the one heated for eight hours. The viscosity numbers of the rubber solutions were very low.

INFLUENCE OF HEATING IN CARBON DIOXIDE AT 130 DEGREES C. BEFORE DISSOLVING.

Not heated, viscosity number 65.
Heated four hours, viscosity number 25.
Heated eight hours, viscosity number 12.

In order to study the behavior of rubber on heating at a higher temperature than 130 degrees C. the following series of tests were made, this time with another crêpe than the previous one.

About 300 grams of *Hevea* crêpe (viscosity number 80.7) was put into a stoppered bottle through which a slow current of washed and dried carbon dioxide gas was conducted. The bottle was heated in a drying-stove at 140 degrees C. and after respectively three quarters, six, and twelve hours, a small piece of rubber was taken out for the viscosity test. After heating for three quarters of an hour, the rubber dissolved readily, when making a one per cent solution; after six hours' heating an undissolved part was retained on the glass-wool filter, while the rubber heated for twelve hours, having become very tacky, dissolved better, but not completely.

INFLUENCE OF HEATING IN CARBON DIOXIDE AT 140 DEGREES C. BEFORE DISSOLVING.

Not heated, viscosity number 80.7.
Heated three quarters of an hour, viscosity number 39.3.
Heated six hours, viscosity number 18.9.
Heated 12 hours, viscosity number 10.2.

This shows plainly that the viscosity number, originally 80.7, declines continuously on heating, but it must not be lost sight of that the insoluble portion which remains on the filter may have contained highly viscous parts. Afterwards, when dealing with Van Heurn's results on vulcanization of rubber heated in a current of carbon dioxide, it will be shown that this latter theory is correct. The study of the influence of heating on the mechanical properties of rubber is of much importance, as it enables us to judge as to the action of the heat during the smoking process. As in this manipulation atmospheric oxygen can never be excluded, Van Heurn made another test by heating rubber in air. *Hevea* crêpe was heated in a drying-stove at 80 degrees C. as uniformly as possible. Half was taken out after one hour and the rest after three hours. The following results were obtained:

INFLUENCE OF HEATING IN AIR AT 80 DEGREES C. BEFORE DISSOLVING.

Not heated, viscosity number 62.4.
Heated one hour, viscosity number 58.5.
Heated three hours, viscosity number 53.5.

The viscosity numbers show a decline on heating, though not considerable. The heated rubber was not changed externally, only it became somewhat more transparent. In connection with the preceding it should be pointed out that the rubber heated in air dissolved completely in benzene, in contradistinction to that heated in carbon dioxide. Consequently, there was no question of highly viscous rubber parts being retained on the filter before the viscosity number had been determined.

3. INFLUENCE OF LIGHT.—The process of depolymerization is also very rapid under the influence of light. Reference has only to be made to Van Heurn's experiments, which prove that the decline of the time of running through the capillary-viscosimeter occasioned in diffused daylight does not take place as soon as the light is excluded.

Several tests have been made at the Institute with approximately one per cent solutions of rubber in benzene and xylene, which were exposed in quartz flasks to the action of ultra-violet rays from a quartz lamp. These experiments are to be published later on. The process of depolymerization appeared to move with an extraordinary velocity under the influence of ultra-violet rays, both in the presence of air as well as in that of an indifferent gas (carbon dioxide).

4. CHEMICAL INFLUENCE.—In 1904 Harries showed that after a rubber solution had been shaken with potassium permanganate, the rubber did not return to its normal condition but appeared to be changed into a sirupy mass. He proved that depolymerization had taken place, without the rubber having been oxidized. This very interesting observation has been confirmed at the Institute. Observation by Marquis and Heim, afterwards made independently by Spence and Kratz, that the viscosity of a rubber solution is strongly diminished through traces of acids, has also been confirmed at the Institute. Bernstein mentions that traces of bromine can lower the viscosity of a rubber considerably. At the Institute this was also noticed when applying the bromine method for the determination of caoutchouc. Reference should be made to the observation that at high temperatures the depolymerization is catalytically accelerated by oxygen.

Thus very diverging chemical influences can occasion depolymerization, but a satisfactory explanation has not been found in any case.

(*To be continued.*)

CHEMICAL PATENTS.

THE UNITED STATES.

RUBBER SUBSTITUTE.—A process of producing a composition adapted for use as a rubber substitute, which includes mixing a sulphonate and a polymerizable oil to which has been added a substance adapted to neutralize any free sulphonate and acid remaining in the mixture, the neutralizing substance being provided with a protective coating which is penetrated after the main reaction has taken place. A composition adapted for use as a rubber substitute, containing the reaction product of a polymerizable oil and a sulphonate, together with a neutral compound derived from free sulphonates and a neutralizing agent. (William W. Carter, Needham, Mass., United States patent No. 1,251,862.)

RUBBER SUBSTITUTE.—A process of producing a composition adapted for use as a rubber substitute, containing the washed and dried product resulting from the action of formaldehyde on the reaction product of a mixture of sulphonates derived from tar acids with China wood oil to which free tar acids have been added. (William W. Carter, Needham, Mass., United States patent No. 1,251,863.)

THE UNITED KINGDOM.

INDIA RUBBER.—Rubber latex is treated, so as to prevent partial clotting and to produce a larger yield, with a polyvalent alcohol, such as glycerine, glycol, or a derivative thereof soluble in water, such as tri-palmitin-glycerine-ester or other glycerine esters, but excluding sugars and viscose, and with or without subsequent treatment with an alcohol and benzine, as described in Specification 8487/15. In an example, after above treatment the coagulum is removed, pressed, and hung to dry at not exceeding 90 degrees F. The bulk of the soft resins and soluble proteins are removed with the benzine during the process of pressing. It is desirable to allow a certain quantity of alcohol and benzine to remain in the rubber which is said to result in the formation of synthetic rubber. After the addition of glycerine, coagulation may be rapidly effected, if desired, by the addition of a coagulant, instead of by the bacteria in the latex as in the above process. (C. A. Ilcken, 1164 East Coast Road, and St. V. B. Down, 43 The Arcade, both of Singapore, British patent No. 110,566.)

POLISHING COMPOSITIONS.—A polish for metals and vulcanite is composed of stearine, tripoli, and chromium oxide, thinned, if desired, by oil. (R. F. Bobb, 125 Great Western Road, Glasgow. British patent No. 110,618.)

VULCANIZED FIBER.—Vulcanized or parchmentized fiber is treated, prior to drying, with water soluble or water-removing matter to displace the water and then with matter capable of rendering the fiber more waterproof or flexible. Alcohols, acetone and ether are the water-removing substances. Oils, fatty acids, rubber, gums, resins, nitrocellulose solutions, and phenol-formaldehyde condensation products are mentioned as substances in which the fiber may be immersed after treatment with the alcohol, etc., for rendering it more waterproof. (J. Y. Johnson, 47 Lincoln's Inn Fields, London. British patent No. 110,650.)

WASTE RUBBER UTILIZATION.—Rubber waste containing fibrous matter is recovered and utilized, in such a way as to retain the rubber and its admixtures, as well as the reaction products in the final product, by treatment with sulphuric or other acid to destroy the fiber, neutralizing with lime in slight excess, drying to eight to ten per cent of moisture, and heating with a saponifiable oil, such as corn oil, or with a glyceride, wax or fatty substance, and with a devulcanizing agent, such as a heavy mineral oil or grease with or without resins or bituminous substances. (W. J. Mellersh-Jackson, 28 Southampton Buildings, London.—[Mechanical Rubber Co., 73 Reade street, New York City.] British patent No. 110,661.)

CORK SUBSTITUTE.—Cellulose material, such as spent hops and ground wood with or without addition of finely divided cork, is treated first with a fireproofing salt, such as borax or a tungstate, and, after drying, sprayed with a solution of rubber prior to molding into slabs. (G. E. Heyl, King's House, Kingsway, London. British patent No. 110,941.)

THE DOMINION OF CANADA.

RUBBER SUBSTANCE.—Process of manufacturing a porous or spongy rubber substance which comprises coagulating rubber latex under conditions producing a porous or spongy coagulum, and fixing the pores by vulcanization. This is the same as British patent No. 1,111/14. (Philip Schidrowitz and Harold A. Goldsborough, London, W. C., England. Canadian patent No. 180,003.)

RUBBER VULCANIZING PROCESS AND PRODUCT.—A process for treating rubber or similar material, which comprises adding benzoyl peroxide as a preliminary to heating the mixture to a temperature below 100 degrees C. and vulcanizing the mixture at substantially normal temperature. (The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of Edward Lake, New York City, assignee of Iwan Ostromislensky, Petrograd, Russia. Canadian patent No. 179,354.)

RUBBER VULCANIZING PROCESS AND PRODUCT.—A process for treating rubber or similar material, which comprises adding sulphur and a tri-nitro-benzene and vulcanizing by their action. (The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of William Edward Lake, New York City, assignee of Iwan Ostromislensky, Petrograd, Russia. Canadian patent No. 179,355.)

RUBBER VULCANIZING PROCESS AND PRODUCT.—A process for treating rubber or similar material, which comprises adding a chlorine compound of rubber and vulcanizing under its action. (The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of William Edward Lake, New York City, assignee of Iwan Ostromislensky, Petrograd, Russia, Canadian patent No. 179,356.)

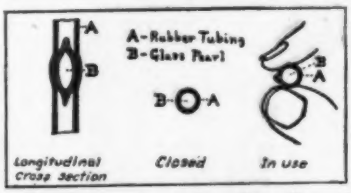
THE FRENCH REPUBLIC.

VULCANIZED FIBER.—A process for rendering sheeted vulcanized fiber flexible for use as shoe soling, consists of subjecting the sheets of vulcanized fiber, from one to six millimeters in thickness, to an aqueous solution of zinc chloride at a low uniform temperature. They are then dried and impregnated with an emulsion of sulphonated castor, or red Turkish oil and water, followed by further impregnation with some animal or vegetable oil. The sheets are subsequently wiped free of oil and the surface finished with a coating of melted paraffin or silicate of soda. (T. Oye, French patent No. 484,421.)

LABORATORY APPARATUS.

AUTOMATIC HYDROGEN SULPHIDE STOP-COCK.

A SATISFACTORY automatic stop-cock for hydrogen sulphide is that described by Carl H. Classen in the "Journal of Industrial and Engineering Chemistry" as being used at Rice Institute, Houston, Texas. To each small branch pipe of the hydrogen sulphide main, thin-walled rubber tubing one foot long and of convenient diameter is attached. Near the branch pipe, inside the rubber tubing, is a glass "pearl" made from glass tubing of a diameter slightly larger than that of the rubber tubing. The device is merely an application of that used with ordinary Mohr burettes. The advantages of this device are: open stop-cocks are impossible; the flow of gas can be regulated with certainty and extreme ease; the device is not easily put out of order; it is easily and quickly replaced; the "pearl" may be moved to a new position when necessary; the cost is very low, and the gas is not wasted.

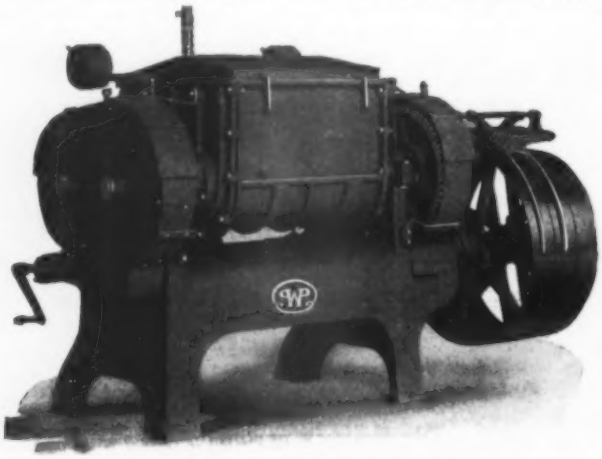


New Machines and Appliances.

A KLINGERIT MIXING MACHINE.

WHEN high-pressure steam packing, containing long fiber asbestos, was first put on the market, the mixing of the composition was one of the hardest problems. The standard kneading and mixing machines were used, but the results obtained were far from satisfactory. The asbestos fiber formed lumps and was not evenly distributed throughout the compound. The quality of the finished product naturally was very much affected thereby.

After thorough investigation of the manufacturing requirements, the machine here shown was developed and has proved

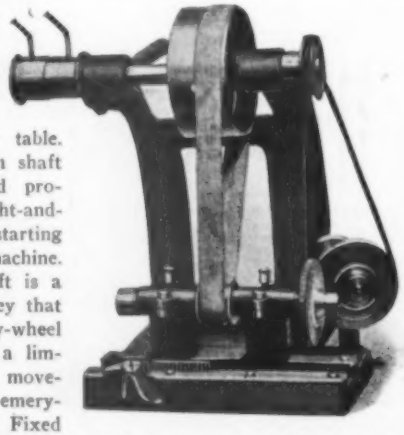


to be particularly adaptable to this class of mixing. Through the action of specially constructed revolving blades, the asbestos fiber, instead of being broken off short, is separated with a shredding effect and long fiber is evenly distributed throughout the entire batch.

This machine is built in various sizes with or without a steam jacket, and is equipped with a counter-balanced, air-tight cover to prevent the escape of dust. (Werner & Pfleiderer Co., Inc., Saginaw, Michigan.)

THE DONNELLY ROTARY KNIFE GRINDER.

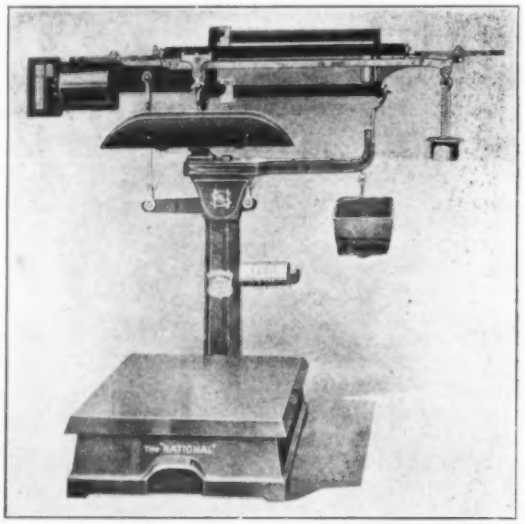
Rotary cutting machines are of general use in all rubber mills at the present time, so that a machine of special design for sharpening rotary cutting knives should be of timely interest. As the illustration shows, this machine is substantially built and intended to be bolted to a convenient bench or table. The upper or main shaft is belt-driven, and provided with tight-and-loose pulleys for starting and stopping the machine. Keyed to this shaft is a wide-face belt pulley that drives the emery-wheel shaft and permits a limited reciprocating movement while the emery-wheel is revolving. Fixed to the outer end of the main shaft is the pulley that drives the cutter arbor by means of a quarter-turn, round belt. The cutter to be ground is mounted on the arbor and adjusted to the proper angle in relation to the cutting face of the emery-wheel. The machine is then started and the rapidly revolving emery-wheel is brought in contact with the cutter knife that revolves at a slower speed in the opposite direction, and when the emery-wheel frame is slowly moved to the right and left by means of the rack and hand-pinion the cutter is accurately ground. (Donnelly Machine Co., Brockton, Massachusetts.)



COUNTING AND WEIGHING MOLDED RUBBER GOODS.

The problem of counting small molded rubber articles has been one which has engaged the attention of factory efficiency managers for a good many years past. There are several methods which have been used to expedite counting, but the more primitive of these are gradually giving place to machine methods. The ordinary method of counting is, of course, the hand count and then there are other methods which cross-cut to some degree but still retain a certain amount of mental computation and hand work. There is no other device, however, which has so completely eliminated the hand count as the counting machine and the idea has been accepted so generally that these machines are now operating in many rubber mills.

The National counting machine operates on a system of ratio weight, scientifically applied. A few pieces of the material to be counted are placed in a small ratio pan which slides back and forth on the beam, the correct number of pieces to be used being indicated on what is known as the counting bar. When the platform of the machine is loaded with the material to be counted, the loaded ratio pan is slid along the beam until the beam comes to a perfect balance. At the balancing point a small



arrow attached to the top of the ratio-pan hanger points to a figure on the counting bar which indicates the exact number of pieces resting on the platform.

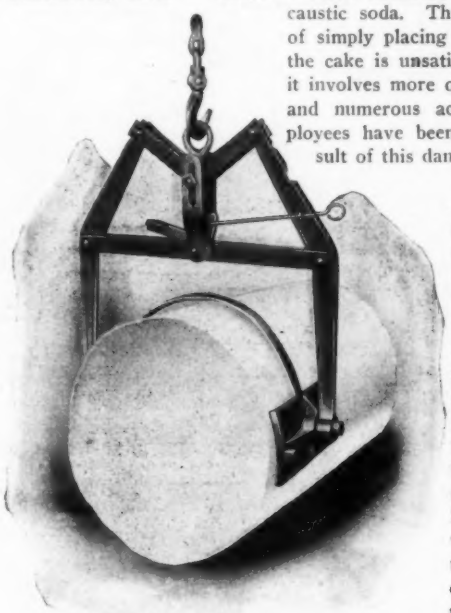
Provision is made on the machine to set off the tare of any container which it is desired to use to hold the pieces to be counted as the platform load. On some of the machines various types of scoops are provided for holding loose stock. The ratio pans vary also and in some instances take the form of wire baskets or clips to handle various types of material.

These machines are made in twenty-nine styles, the smallest

counting pieces weighing 25,000 to the ounce, and the largest counting tons of heavy material. The machine here shown accurately counts pieces weighing ¼ ounce and over, and is equipped with a double weighing beam. The upper bar is graduated from one ounce to ten pounds; the lower bar, two ounces to twenty pounds. Size of platform, 13 by 19 inches; load capacity, 300 pounds. (National Scale Co., Chicopee Falls, Massachusetts.)

LUMMUS LIFTING TONGS.

The Lummus tongs, illustrated herewith, were designed to overcome the danger and inconvenience incidental to lifting and transferring cakes or lumps of fused chemicals, such as drum caustic soda. The usual method of simply placing a chain around the cake is unsatisfactory in that it involves more or less handling, and numerous accidents to employees have been the direct result of this dangerous practice.



The wide curved and corrugated jaws of the tongs provide a gripping contact that will neither slip nor shatter the cake, and the swivel feature permits picking up or placing the cylindrical cakes in either horizontal or vertical position. This is indispensable, especially in the case of heavy, slippery material that cannot be touched with the hand nor gripped by ordinary means. Particular attention is called to the discharging latch which holds the jaws open after the cake is released, thus facilitating easy removal of the tongs.

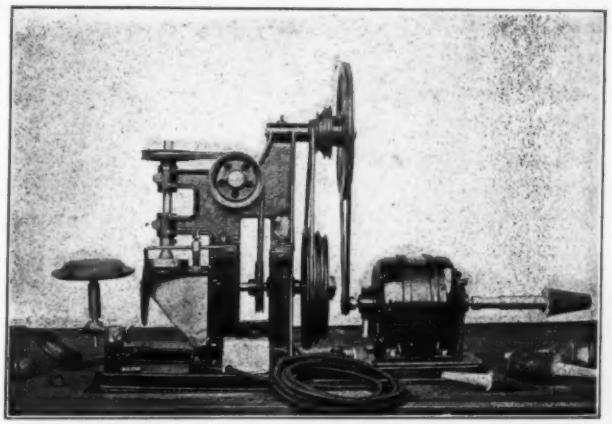
The tongs are substantially made of cast steel for rough service, and repair parts are available if needed. They are most conveniently used in conjunction with a standard light chain hoist and trolley to permit lateral movement.

(The Walter E. Lummus Co., 173 Milk street, Boston, Massachusetts.)

MOLDED GOODS OVERFLOW TRIMMER AND BUFFER.

Mechanical rubber goods that are made in molds vary greatly in size and shape, making the overflow trimming of these different articles a separate problem of difficult solution. A machine that is designed to meet the trimming requirements of a wide range of mechanical and plumbers' goods is here shown. It is self-contained, the motor being mounted on the bed-plate of the machine and started and stopped by a push-button, through a flexible cord connected to any convenient lamp socket. The vertically suspended cutter is driven from the inner end of the motor-shaft by a belt, and three-step cone pulleys provide the necessary speed changes for the different trimming operations.

Wood spindles are turned up to fit the various articles to be trimmed, and provided with taper shanks fitting the vertical socket that rotates freely on the end of an adjustable arm pivoted to the front of the machine. When the spindle is in place and the holder adjusted to the vertically suspended cutter, on the instant the hand is removed from the spindle it starts to revolve and the overflow is removed. The outer end of the motor-shaft is provided with a holder to receive the various



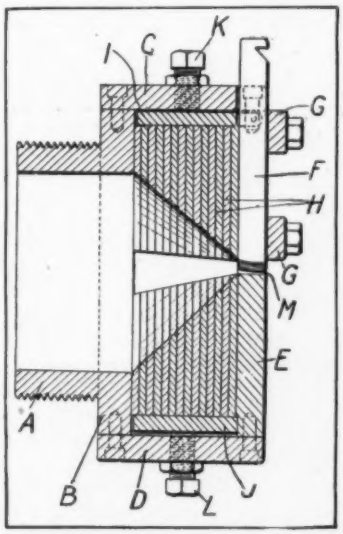
spindles that are shaped for buffing or trimming the inside of rings and gaskets.

Valves, washers, rings, bumpers, cushions, pump buckets, chair and crutch tips, syphon valve washers, sink gaskets, force cups, tank balls, tank valves, auto bumpers, bulbs, laboratory corks, stoppers and packers, and in fact any rubber article from one-half inch up to almost any size in diameter, can be trimmed on this machine. (T. W. Morris, 3304 Warren avenue, Chicago, Illinois.)

MACHINERY PATENTS.

ADJUSTABLE TUBING MACHINE DIE.

THE adjustable feature of this die permits changing the size and shape of the die opening and also provides means whereby the convergent choke passage leading to the die opening may be varied to control the flow of material. Referring to the illustration, which is a sectional elevation of the die head, *A* is a tubular portion adapted to be screwed into the outlet of a tubing machine and is provided with a square flange *B* to which are bolted the respective top and bottom plates, *C* and *D*; two side plates, not shown in the illustration, and a front plate *E*, covering only the lower half, thus forming a box-like head. The contour of the die opening is determined by a series of thin strips *F*, equal in width to the thickness of the front plate *E*, and occupying the upper transverse half of the square die head. These strips are adjustable vertically and held in place by cross bars *G*, being backed by a series of filler plates *H*, that occupy the upper half of the die head while the lower half is filled with similar plates. The inner ends of these plates are so shaped that when assembled in the die box they form the choke of the die head. The outer ends of the upper and lower filler plates are backed by hinged thrust plates *I* and



J, and by turning bolts *K* and *L* inwardly the walls of the choke passage are decreased in a uniform manner.

The die opening *M*, is formed by placing on top of the front plate *E* a suitable pattern to which the lower ends of the strips *F* are adjusted. (George H. Lewis, assignor to The Fisk Rubber Co., both of Chicopee Falls, Massachusetts. United States patent No. 1,252,821.)

OTHER MACHINERY PATENTS.

THE UNITED STATES.

1,252,049. Tire building machine. W. J. Steinle, Elmhurst Heights, N. Y., assignor to Rubber Regenerating Co., a corporation of Indiana.

1,252,106. Tube repair vulcanizer. R. Hagen, Dayton, Ohio.

1,252,109. Cross wrapping machine. O. E. Heckman, Akron, Ohio.

1,252,925. Tire making machine. F. H. Moyer, assignor to The Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,253,105. Machine for making tire carcasses. W. C. Stevens, assignor to The Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,254,166. Repair vulcanizer. O. Staley, Indianapolis, Ind.

1,254,544. Gasket cutter. W. W. Slayback, Ponca City, Okla.

1,254,827. Tire-building machine. T. Midgley, Lancaster, Ohio, assignor to Morgan & Wright, a corporation of Michigan.

1,255,073. Tire-building machine. A. O. Abbott, Jr., assignor of one-half to W. B. Norton—both of Detroit, Mich.

1,255,098. Strip-cutting apparatus. G. H. Lewis, assignor to The Fisk Rubber Co.—both of Chicopee Falls, Mass.

1,255,099. Method and apparatus for molding rubber goods. G. H. Lewis, assignor to The Fisk Rubber Co.—both of Chicopee Falls, Mass.

THE DOMINION OF CANADA.

179,967. Boot lining cementing machine. The United Shoe Machinery Co. of Canada, Limited, Maisonneuve, assignee of the United Shoe Machinery Co. of Canada, Montreal—both in Canada, assignee of P. Weiss, Pirmasens, Bavaria, Germany.

THE UNITED KINGDOM.

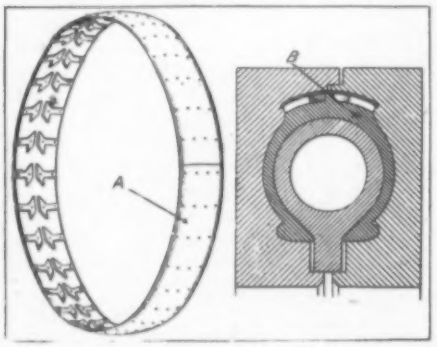
110,590. Wheel tires. J. E. L. Barnes, 34 Castle street, Liverpool. Miller Rubber Co., 1269 South High street, Akron, Ohio, U. S. A.

110,955. Composite cores or formers for expanding or shaping pneumatic tire covers. Ajax Engineering Co. and J. Cox—both of Arthur street, Birmingham.

MISCELLANEOUS PATENTS.

FRENCH MOLD FOR NON-SKID OR PLAIN TREAD TIRES.

THIS device comprises a two-part mold and a thin, split, annular rim of metal of the same width as the surface of the tire tread. This rim may be provided with a design in relief or the design may consist of a series of separate dies, placed in the mold, to form the tire tread.



In the illustration, *A* is a perspective of the split rim bearing the tread design and *B* shows the rim and the tire enclosed in the mold.

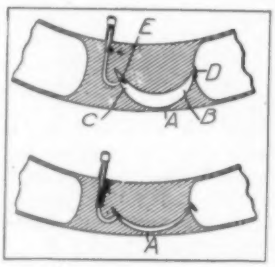
The tire and mold are assembled in the usual way and after vulcanization the mold is opened and the rim removed from the tire.

All kinds of tread designs can be obtained by having the plates ready with various designs in relief. These plates are light and cheap, and their sets of dies can be arranged economically and rapidly.

By substituting smooth plates, treads with smooth surfaces can be obtained. Thus the same rims serve for making plain or non-skid treads. (J. E. Hauvette. French patent No. 483,792.)

SELF-INFLATING INNER TUBE.

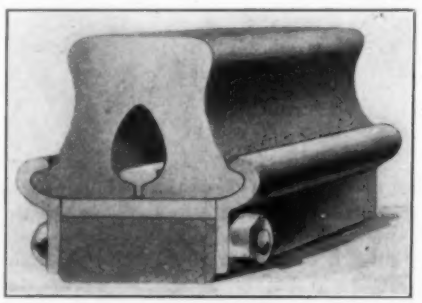
Positioned within an inner tube of common construction, is a thick elastic plug or partition with a crescent-shaped cavity *A*, provided with tapering ends *B* and *C*. The former communicates with the interior of the tube, and a rubber flap-valve *D* prevents air passing from the tube into the cavity, while *C* communicates with an outside air-duct, the egress of the air being prevented by a suitable valve *E*.



When the tube is placed in the casing and the wheel on which it is mounted revolves, the air is expelled from the cavity into the tube when that portion of the tire containing the elastic partition is in contact with the road. When pressure is removed by the revolution of the wheel the valve *D* closes and the valve *E* opens, allowing air to pass into the cavity *A*. This pumping action is repeated as the wheel revolves and inflates the tire. When the proper pressure is attained, the air pressure in the tube forces the end walls of the elastic partition together, thus closing the cavity and both valves until the pressure is reduced, when the pumping action of the cavity is automatically resumed. [Edward W. Rawdon, Akron, Ohio. United States patent No. 1,250,223.]

A NEW GOODYEAR CUSHION TIRE.

The Goodyear Tire & Rubber Co., Akron, Ohio, has produced a new cushion tire that is designed for all classes of solid tire service. This tire has been in preparation for more than two years and after the most rigid experimental tests has proved satisfactory in every way.



In appearance it resembles an ordinary solid rubber tire, but is quite different in construction. The tread, as far as practical wearing thickness is concerned, is equal to that of solid tires of similar size. In cross section it somewhat resembles an inverted Y with a fabric reinforced double base fitting in a clincher-flanged rim. There is a metal ring that runs through the center, holding the double bases of the tire firmly in place and preventing them from buckling, besides eliminating the possibility of the tire twisting or slipping from the rim. The resilient, tough compound used in the stock, together with the peculiar construction of the tire, produces a combined pneumatic and solid-tire effect in practical use. The mileage obtained in tests of these tires ranges from 25,000 to 45,000 miles on one- and two-ton trucks to which this new tire seems to be particularly adapted.

HARD RUBBER MONEY IN PERU.

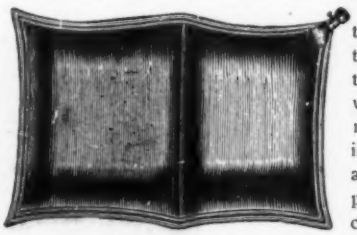
The United States Rubber Export Co., Limited, New York City, has recently sold 62,000 pieces of hard rubber money, ranging in value from five cents to one dollar, to the Andes Exploration Co., which is opening up one of the largest properties in South America at Arequipa, Peru. The rubber money is to take the place of small change, which is said to be very scarce in Peru at present. This expedient, it will be recalled, was resorted to temporarily during our own civil war.

New Goods and Specialties.

A RUBBER FOLDING BASIN AND AN INFLATED CAMP PILLOW.

CAMPERS and soldiers are the favored of the manufacturing gods these days. Here is a folding rubber hand-basin which is supported by steel ribs when open, and weighs but a few ounces. Having no cloth surface, it is easily dried after use. It is selling now to soldiers in the cantonments, both here and abroad, although it was originally designed for use by campers.

The pillow shown in the accompanying illustration is just the thing for the soldier anywhere. It weighs but eight ounces net, measures 12 by 18 inches, and can be folded and put in the pocket. The pillow is divided in the center, making it more comfortable in use. It has a valve at one corner with a screw cap which retains the air after inflation. (Davol Rubber Co., Providence, Rhode Island.)



FIREMAN'S SMOKE AND GAS HELMET.

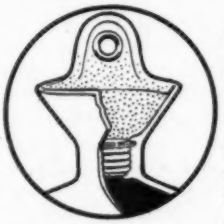
While inventors are providing for the protection of our boys in the trenches, exposed to the poisonous gases of the enemy, they have also remembered the fireman. One of the resultant devices is seen in the illustration. It consists of a canvas hood somewhat similar in appearance to a diver's, with mica squares admitting light and fitting closely over the head and shoulders; from it leads a hose which trails behind the wearer to the floor, where it takes up the fresh air.

Press Illustrating Service, Inc.

The invention is founded on the natural law that gases and fumes, smoke and heat, rise, leaving at the floor whatever oxygen is to be found in a room or building where they are. It is claimed that anyone wearing one of these helmets can enter a building filled with smoke or fumes and remain as long as there is a layer of fresh air next to the floor. The helmet weighs only five pounds and can be put on in fifteen seconds, there being no fastenings to adjust.

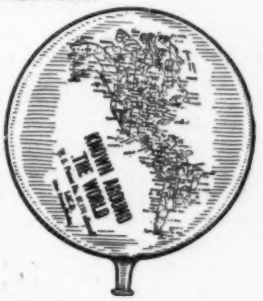
Fire departments are employing these helmets and many factories and department stores are installing them, hanging them up in accessible places as they would coats or fire extinguishers. The British Government, also, has more than 300 of them in use in the army. (National Safety Device Co., Oberlin, Ohio.)

A HOT-WATER BOTTLE WITH A NEW KIND OF NECK.



What is styled a hot-water bottle *de luxe* is called the "Black Beauty." It is molded in one piece and is seamless and bindingless. It is made of black tire tread stock and will stand a ton and a half of pressure without a rupture, the manufacturer claims. In addition, it has the special C-Kure-Nek, the thimble being embedded in thick, solid rubber before the bottle is vulcanized instead of being cemented in afterward. This prevents all possibility of leakage. The illustration shows the construction of this neck. (The Miller Rubber Co., Akron, Ohio.)

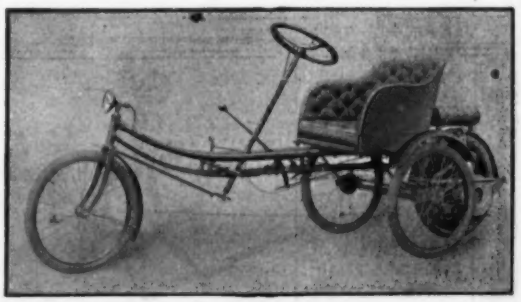
EDUCATIONAL BALLOONS.



The fondness of all children, whether of younger or older growth, for the fascinating balloon is now turned into educational channels and the toy becomes an instructor. The balloons are made of Para rubber and on them are imprinted maps. They are provided with a mouthpiece for inflating purposes, and come in different sizes. (Rex Rubber & Novelty Co., 96 Warren street, New York City.)

THE CYCLOMOBILE—A ONE-PASSENGER AUTO.

A new model which combines a modification of the tricycle and the independent motor-wheel, sometimes attached to bicycles, provides everybody with his own individual automobile. Even the 9-year-old has not been forgotten, for the manufacturers provide for him a foot-operated cyclomobile without the motor-wheel. The model illustrated has wheels with single clinch



20 by 1⅝-inch rims and motorcycle tires with extra heavy tread, while the seat is upholstered in imitation leather. The motor-wheel is of special design and the dimensions of the cyclomobile are: wheelbase, 62 inches; length over all, including motor-wheel,

102 inches; width over all, 32½ inches; road clearance, 10 inches; width of seat, 20 inches; weight complete with motor-wheel, 167 pounds. The manufacturer claims utility, economy, simplicity of operation, comfort and durability. (The Cyclomobile Manufacturing Co., Toledo, Ohio.)

NECKWEAR RUBBER-LINED AND NON-CREASABLE.

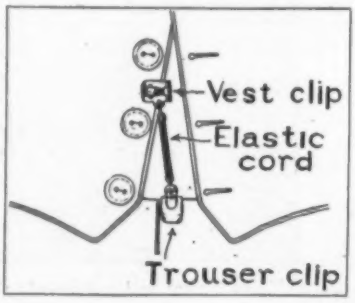
The progressive West sends us a patented rubber-lined necktie which is said to be non-creasable and, therefore, much longer-lived than the ordinary kind. A comparison of the usual cotton-lined scarf with the rubber-lined one shows that the latter retains its fresh appearance long after the former, for which a good price was paid, has been discarded. From all appearances, that motley collection of cast-off scarfs will now cease to increase with any appreciable degree of rapidity, once the wearer has stocked up with rubber-lined ones. (Allan H. Waas, 1030 Broadway, Oakland, California.)

CARDCASE AND BILLFOLD WITH WATERPROOF LINING.

A combined cardcase and billfold with a waterproof lining and a secret pocket for bills is shown in the illustration. It is made of fine, soft military leather and is provided with small pockets for cards, postage stamps, etc., besides the money pocket. It is designed specially for soldiers, but should be just as practical for the civilian. It measures 9¼ by 4¼ inches when open and may be folded to one half of that size. (Mark Cross Co., 404 Fifth avenue, New York City.)

AN ELASTIC TROUSERS SUPPORTER.

A newly patented device for the man who dislikes suspenders it shown here. It consists of two clasps of a usual and well-known type with thumb-levers and teeth to engage fabric, connected to the ends of an elastic cord. One clasp acts laterally to engage the edge of the vest adjacent to the row of buttons and the other vertically to attach to the upper edge of the waist-band of the trousers. The teeth in the clasps are so arranged as to resist the tendency toward vertical movement after being fastened in place. When the vest is buttoned the device is invisible. (William Baake, West Hoboken, New Jersey.)



A SWIMMING WING WITH RUBBER VALVE.

This ingenious device, known as the Regina swimming wing, is tied around the waist line like a life belt and may be adjusted to either the front or back of the body for swimming or floating, leaving the arms entirely free. It is made in both single and double models, of closely-woven material which resists permeation by water. Rust-proof rubber valves permit the device to be inflated readily and retain the air for hours. [Regina Swimming Device Co., 22 East Twenty-first street, New York City.]

BABY, TOO, IN A ROCK-A-BYE AUTO SEAT.

What to do with the baby in an automobile when crowded for room is a problem which has been solved at last. A seat has been invented for "His Majesty" to occupy in state, perfectly comfortable and happy. It can be attached in a few minutes' time to the back of the front seat of any automobile, by two small steel slots three inches long which do not mar the automobile. When not in use the seat, which consists of an enameled steel frame with a washable-duck support, can be removed from the slots and put away. It is called the "Rock-a-Bye" auto seat. (The Perfection Manufacturing Co., 2701 North Leffingwell avenue, St. Louis, Missouri.)

A RUBBER REDUCING SUIT.

The desire for apparent slimness of figure has led to putting on the market a rubber reducing suit, as shown in the accompanying illustration. It is made of soft, durable red rubber. These garments are worn either next the skin or over a soft, thin undergarment, and the reduction in weight which results is due to the perspiration stimulated by wearing them. (Bailey Rubber Co., 22 Boylston street, Boston, Massachusetts.)

A TRAVELING SHOWER BATH.

In the devastated regions of France the plight of the children is especially pitiful. Owing to the lack of bathing facilities, skin diseases are prevalent, many of the little unfortunates having gone unwashed since last winter, and all are in need of proper care. To relieve this situation in some degree, the Red Cross has supplied a traveling dispensary which visits the districts abandoned in April by the Germans. A shower bath, mounted on an automobile, is a novel feature of this outfit, and is ingeniously arranged to suit the unusual requirements. On one side of the "camionnette" is a seat large enough to accommodate the child and a nurse. Overhead are instrument bags and a rack for medicines, another for gauze and bandages being opposite. The shower is made of jointed wood, rubber and nickel, and there is a wooden tub underneath in which the child sits, while the doctor pumps warm water through the rubber tube and the nurse scrubs. After this proceeding, the shower tube is shifted into a bucket of cold water and a final cold douse given.

The Rubber Association of America, Inc.

EXECUTIVE COMMITTEE MEETING.

AT THE executive committee meeting held on February 6, Messrs. Work, Dunn, Kelly, Hodgman and Secretary Voorhis were present, and the following firm members were elected:

FIRM MEMBERS AND REPRESENTATIVES.

M. Rothschild, M. Rothschild, 25 Beaver street, New York City; Boonton Rubber Manufacturing Co., Richard W. Seabury, Boonton, New Jersey.

George B. Hodgman was appointed to represent the association on the National Industrial Conference Board.

A resolution was passed favoring the formation of a Crude Rubber Division of The Rubber Association of America, Inc.

It will be remembered that instead of the regular 1917 outing, a collection was made for a war relief fund. This has been disbursed as follows: American Red Cross, $570; Young Men's Christian Association, $500; Knights of Columbus, $500; American Fund for Charité Maternelle de Paris, $500; New York "Sun" Smoke Fund, $500.

The following standing committees were appointed for the ensuing year:

NOMINATING COMMITTEE.

W. O. Rutherford, chairman, The B. F. Goodrich Co., Akron, Ohio; John S. Broughton, United & Globe Rubber Manufacturing Cos., Trenton, New Jersey; Edward C. Sweeney, Obalski & Sweeney, Inc., New York City.

LEGISLATIVE COMMITTEE.

Horace De Lisser, chairman, Ajax Rubber Co., Inc., New York City; Frederic C. Hood, Hood Rubber Co., Watertown, Massachusetts; Ernest Hopkinson, United States Rubber Co. System, New York City.

BANQUET COMMITTEE.

Tracy S. Lewis, chairman, Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut; Wilson G. H. Randolph, Endurance Tire & Rubber Co., New Brunswick, New Jersey.

OUTING COMMITTEE.

F. R. Henderson, chairman, F. R. Henderson & Co., New York City; A. A. Garthwaite, Lee Tire & Rubber Co., Conshohocken, Pennsylvania; L. P. MacMichael, New York City.

ARBITRATION COMMITTEE.

W. G. Ryckman, chairman, W. G. Ryckman, Inc., New York City; William E. Bruyn, L. Littlejohn & Co., New York City; Andrew H. Brown, Meyer & Brown, New York City; C. B. McKay, The Fisk Rubber Co., New York City; Van H. Cartmell, Kelly-Springfield Tire Co., New York City; Horace De Lisser, Ajax Rubber Co., New York City; R. B. Woodbury, Hood Rubber Co., Watertown, Massachusetts; B. G. Work, The B. F. Goodrich Co., New York City; Harry S. Voorhis, secretary, New York City.

SPECIAL COMMITTEE ON UNIFORM CRUDE RUBBER CONTRACT AND NOMENCLATURE.

H. Stuart Hotchkiss, chairman, United States Rubber Co. System, New York City; William E. Bruyn, L. Littlejohn & Co., New York City; George B. Hodgman, Hodgman Rubber Co., Tuckahoe, New York; Frederic C. Hood, Hood Rubber Co., Watertown, Massachusetts; William J. Kelly, Poel & Kelly, New York City; Paul W. Litchfield, The Goodyear Tire & Rubber Co., Akron, Ohio; Charles T. Wilson, Charles T. Wilson Co., Inc., New York City; B. G. Work, The B. F. Goodrich Co., New York City.

The Rubber Association of America, Inc., has recently opened a Washington office at room 905 Colorado building. This office will also be occupied by the War Service Committee of The Rubber Industry of the U. S. A.

MANUFACTURERS' REVISED CRUDE RUBBER GUARANTEE.

THE War Trade Board has adopted new forms of guarantees for the release of crude rubber and kindred products imported into the United States.

Particular attention is called to paragraphs 4 and 5 of the manufacturer's guarantee:[1]

In regard to paragraph 4, applications for consent to export should be made on the present form of application for export license which is provided by the Bureau of Exports of the War Trade Board, and, if granted, the consent of the board will be given by license in the usual manner.

Paragraph 5 imposes upon manufacturers the obligation to satisfy themselves reasonably that the merchandise sold by them will not be exported by the purchaser or his assigns or transferees without an export license from or the consent of the War Trade Board, and that such merchandise will not be used for the benefit of an enemy or an ally of an enemy.

While the manufacturers themselves must in the first instance be the judge of what is reasonably satisfactory, it is necessary, in addition to any other means they may choose to elect, that they embody in their invoices or memoranda of sale a notice substantially the same as the following, so that the purchaser will be fully acquainted with the duties and obligations imposed by this guarantee.

NOTICE.

Raw material from which the goods covered by this invoice were manufactured was obtained by us only after delivery to the War Trade Board of the United States Government of a guarantee containing certain provisions, among which is the following:

I/we will not sell, deliver, dispose of, or in any way transfer the ownership or control of any manufactured or partly manufactured goods containing any crude rubber, gutta jelutong, scrap or reclaimed rubber, gutta percha, gutta siak and/or balata to or for the benefit of any person or persons within the United States, its territories or possessions, without first reasonably satisfying myself/ourselves that such manufactured or partly manufactured goods will not be exported by the purchaser, his/their assigns or transferees, without first obtaining an export license from or the consent of the War Trade Board, and that such goods will not be used by any such purchaser or transferred or delivered by him/them to or for the benefit of any enemy or ally of any enemy.

The goods are delivered to you upon the expressed agreement on your part, evidenced by your acceptance of the goods and of this invoice, that you will observe the same obligation with reference to the sale of these goods that we are called upon to observe under the terms of the guarantee above set forth.

MEETING OF THE WAR SERVICE RUBBER COMMITTEE.

THE War Service Committee of The Rubber Industry of the U. S. A. held a joint meeting with its various division committees at the Union League Club, Wednesday, February 6, approximately fifty members being present.

Sir Andrew Caird, Chief Administrator of the British War Mission, and Colonel A. M. Davis, of the Quartermaster Corps, United States Army, were present as guests and addressed the meeting.

B. G. Work, chairman, presided and briefly outlined the work of the committee. He made it very clear that the object of the organization is to *help the Government win the war.* All prob-

[1] These forms may be obtained from the secretary.

lems which the Government places before this committee are considered first and foremost from the standpoint of the best interests of the Government, the interests of the industry and of the manufacturer following. Through the coordination of the various branches of the industry, the needs of the Government can be most expeditiously met.

Sir Andrew Caird spoke most earnestly of the important part the industries play in the support of the Government in its prosecution of the war, and also referred to England's action in taking over certain industries, it having been found necessary to make much more severe restriction than has the United States so far.

Colonel Davis made it evident that the Government desires to concentrate its contact with industries through such compact organizations as the War Service Committee and will welcome any assistance which this committee may proffer. He spoke of the unselfish spirit so many manufacturers have displayed in their dealings with the Government, every effort being made to hold costs as low as is possible and still give the best in quality of materials and labor. He also referred most earnestly to the necessity of conveying to all employes in rubber plants the importance of the work which each one does. Often the life of a soldier depends upon the faithfulness with which a minor operator performs his part in the making of some article which goes to the front. It is essential that this spirit of patriotism permeate the entire rank and file of our industry in order that the Government may receive in all of our products positively the best which can be made.

Colonel Davis was followed by J. Newton Gunn, United States Tire Co.; G. B. Hodgman, Hodgman Rubber Co.; H. T. Dunn, The Fisk Rubber Co.; C. T. Wilson, Charles T. Wilson Co., Inc.; Dr. W. C. Geer, The B. F. Goodrich Co.; John A. Lambert, Acme Rubber Co.; Homer E. Sawyer, United States Rubber Co.; E. H. Broadwell, The Fisk Rubber Co., and N. Lincoln Greene, American Rubber Co.

In the general discussion, all present seemed thoroughly alive to the fact that this is our war as well as that of our Allies, and that it is not only the duty but the privilege of each one of us to contribute devoted service to its prosecution.

The War Service Committee has been increased to seven members by the following appointments: Charles T. Wilson, Charles T. Wilson Co., Inc., New York City; Harry T. Dunn, The Fisk Rubber Co., Chicopee Falls, Massachusetts.

Following is the personnel of the organization of the War Service Committee of The Rubber Industry of the U. S. A.

CENTRAL COMMITTEE.

B. G. Work, chairman, The B. F. Goodrich Co., 1780 Broadway, New York City; H. S. Firestone, The Firestone Tire & Rubber Co., Akron, Ohio; J. Newton Gunn, United States Tire Co., 1790 Broadway, New York City; G. B. Hodgman, Hodgman Rubber Co., Tuckahoe, New York City; P. W. Litchfield, The Goodyear Tire & Rubber Co., Akron, Ohio; H. T. Dunn, The Fisk Rubber Co., 52 Vanderbilt avenue, New York City; C. T. Wilson, Charles T. Wilson Co., Inc., 56 Wall street, New York City; M. L. Heminway, Secretary, 17 Battery place, New York City.

PNEUMATIC TIRES TECHNICAL DIVISION.

P. W. Litchfield, chairman, The Goodyear Tire & Rubber Co., Akron, Ohio; William McMahan, Morgan & Wright, Detroit, Michigan; Robert J. Stokes, Thermoid Rubber Co., Trenton, New Jersey; J. C. Tuttle, The Firestone Tire & Rubber Co., Akron, Ohio; J. D. Tew, The B. F. Goodrich Co., Akron, Ohio; Louis T. Vance, Racine Rubber Co., Racine, Wisconsin; J. D. Anderson, The Fisk Rubber Co., Chicopee Falls, Massachusetts.

PNEUMATIC TIRES COMMERCIAL DIVISION.

G. M. Stadelman, chairman, The Goodyear Tire & Rubber Co., Akron, Ohio; J. C. Weston, United States Tire Co., 1790 Broadway, New York City; W. O. Rutherford, The B. F. Goodrich Co., Akron, Ohio; E. H. Broadwell, The Fisk Rubber Co., Chicopee Falls, Massachusetts; R. J. Firestone, The Firestone Tire & Rubber Co., Akron, Ohio; Seneca G. Lewis, Pennsylvania Rubber Co., Jeannette, Pennsylvania; John S. Broughton, United & Globe Rubber Manufacturing Cos., Trenton, New Jersey; P. W. Litchfield, *ex officio*, The Goodyear Tire & Rubber Co., Akron, Ohio.

SOLID TIRES DIVISION.

H. S. Firestone, chairman, The Firestone Tire & Rubber Co., Akron, Ohio; P. W. Litchfield, The Goodyear Tire & Rubber Co., Akron, Ohio; C. J. Welch, United States Rubber Co., 1790 Broadway, New York City; Thomas F. Walsh, Swinehart Tire & Rubber Co., Akron, Ohio; W. H. Allen, The B. F. Goodrich Co., Akron, Ohio; H. T. Dunn, The Fisk Rubber Co., 52 Vanderbilt avenue, New York City.

MECHANICAL GOODS TECHNICAL DIVISION.

Dr. W. C. Geer, chairman, The B. F. Goodrich Co., Akron, Ohio; N. S. Noble, The B. F. Goodrich Co., Akron, Ohio; J. W. Fellows, Boston Woven Hose & Rubber Co., Cambridge, Massachusetts; Charles T. Young, Manhattan Rubber Manufacturing Co., Passaic, New Jersey; S. R. Clark, Republic Rubber Co., Youngstown, Ohio; Dr. A. A. Somerville, United States Rubber Co., 58th street and 11th avenue, New York City; W. H. Cobb, N. Y. Belting & Packing Co., 91 Chambers street, New York City; P. W. Litchfield, *ex officio*, The Goodyear Tire & Rubber Co., Akron, Ohio.

MECHANICAL GOODS COMMERCIAL DIVISION.

E. S. Williams, chairman, United States Rubber Co., 1790 Broadway, New York City; W. O. Rutherford, The B. F. Goodrich Co., Akron, Ohio; Arthur F. Townsend, Manhattan Rubber Manufacturing Co., Passaic, New Jersey; C. D. Garretson, Electric Hose & Rubber Co., Wilmington, Delaware; Guy E. Norwood, Republic Rubber Co., Youngstown, Ohio; John A. Lambert, Acme Rubber Manufacturing Co., Trenton, New Jersey; John J. Voorhees, Voorhees Rubber Manufacturing Co., Jersey City, New Jersey; P. W. Litchfield, *ex officio*, The Goodyear Tire & Rubber Co., Akron, Ohio.

MEDICAL RUBBER GOODS DIVISION.

A. W. Warren, chairman, Hodgman Rubber Co., Tuckahoe, New York; W. S. Davison, The Miller Rubber Co., Akron, Ohio; W. O. Rutherford, The B. F. Goodrich Co., Akron, Ohio; Charles J. Davol, Davol Rubber Co., Providence, Rhode Island; J. Russell Parker, Parker, Stearns & Co., 288 Sheffield avenue, Brooklyn, New York; G. B. Hodgman, *ex officio*, Hodgman Rubber Co., Tuckahoe, New York.

BOOTS AND SHOES DIVISION.

H. E. Sawyer, chairman, United States Rubber Co., 1790 Broadway, New York City; Francis S. Dane, Hood Rubber Co., Watertown, Massachusetts; J. A. Rishel, The B. F. Goodrich Co., Akron, Ohio; William G. Hill, Apsley Rubber Co., Hudson, Massachusetts; J. Newton Gunn, *ex officio*, United States Rubber Co., 1790 Broadway, New York City.

CLOTHING DIVISION.

N. Lincoln Greene, chairman, American Rubber Co., Boston, Massachusetts; S. T. Hodgman, Hodgman Rubber Co., Tuckahoe, New York; C. Kenyon, Jr., C. Kenyon Co., 754 Pacific street, Brooklyn, New York; G. B. Hodgman, *ex officio*, Hodgman Rubber Co., Tuckahoe, New York.

AIRCRAFT DIVISION.

P. W. Litchfield, chairman, The Goodyear Tire & Rubber Co., Akron, Ohio; A. E. Jury, United States Rubber Co., Newark, New Jersey; V. van der Linde, The B. F. Goodrich Co., Akron, Ohio.

GAS DEFENSE DIVISION.

Dr. W. C. Geer, chairman, The B. F. Goodrich Co., Akron, Ohio; P. W. Litchfield, The Goodyear Tire & Rubber Co., Akron, Ohio; Dr. Theodore Whittelsey, United States Rubber Co., 1790 Broadway, New York City.

RECLAIMED RUBBER DIVISION.

F. H. Appleton, chairman, F. H. Appleton & Son, Inc., Boston, Massachusetts; E. A. Andersen, Rubber Regenerating Co., Naugatuck, Connecticut; John S. Clapp, E. H. Clapp Rubber Co., 49 Federal street, Boston, Massachusetts; Rudolph A. Low, United States Rubber Reclaiming Co., Inc., 30 East 42nd street, New York City; John S. Lowman, Philadelphia Rubber Works Co., Akron, Ohio; Joseph F. McLean, Pequanoc Rubber Co., Butler, New Jersey; J. Newton Gunn, *ex officio*, United States Tire Co., 1790 Broadway, New York City.

HARD RUBBER DIVISION.

H. Weida, chairman, India Rubber Co., New Brunswick, New Jersey; John Joseph, The B. F. Goodrich Co., Akron, Ohio; Bruce Bedford, Luzerne Rubber Co., Trenton, New Jersey; Philip H. Campbell, American Hard Rubber Co., 11 Mercer street, New York City; Samuel H. Dodd, Vulcanized Rubber Co., 251 Fourth avenue, New York City; J. Newton Gunn, *ex officio*, United States Tire Co., 1790 Broadway, New York City.

CRUDE RUBBER AND KINDRED PRODUCTS DIVISION.

C. T. Wilson, chairman, Charles T. Wilson Co., Inc., 56 Wall street, New York City; B. G. Work, The B. F. Goodrich Co., 1780 Broadway, New York City; G. B. Hodgman, Hodgman Rubber Co., Tuckahoe, New York; Henry Spadone, Gutta Percha & Rubber Manufacturing Co., 126 Duane street, New York City; W. E. Bruyn, L. Littlejohn & Co., 138 Front street, New York City; W. J. Kelly, Poel & Kelly, 277 Broadway, New York City; H. S. Hotchkiss, United States Rubber Co., 1790 Broadway, New York City; E. H. Huxley, United States Rubber Export Co., Limited, 1790 Broadway, New York City; H. T. Dunn, The Fisk Rubber Co., 52 Vanderbilt avenue, New York City.

FOREIGN TRADE DIVISION.

E. H. Huxley, chairman, United States Rubber Export Co., Limited, 1790 Broadway, New York City; Henry G. Tyer, Tyer Rubber Co., Andover, Massachusetts; Wm. B. Laighton, Hood Rubber Co., Watertown, Massachusetts; R. J. Owens, Boston Woven Hose & Rubber Co., 30 Church street, New York City; A. S. Hardy, Manhattan Rubber Manufacturing Co., 120 Broadway, New York City; R. H. Daniels, The Goodyear Tire & Rubber Co., Akron, Ohio; F. E. Titus, The B. F. Goodrich Co., 1780 Broadway, New York City; G. B. Hodgman, *ex officio*, Hodgman Rubber Co., Tuckahoe, New York.

NEW EXPORT LICENSE REGULATIONS.

Important new regulations regarding exports, effective February 1, 1918, have been promulgated by the War Trade Board. After that date, the new Form X is to be the only application form in use. It is a little more elaborate than the old Form A-2, but combines nearly all requirements in one document so that shippers need not keep several forms on file as hitherto. Individual licenses are required for the exportation of rubber, balata, gutta jelutong, gutta percha, gutta siak, and rubber scrap to Canada and the same is true of most chemicals to whatever destination. Number 4 of the "Journal of the War Trade Board" contains the new regulations in detail, together with the license list and new forms.

SUPPLEMENTAL INFORMATION SHEET NOT NECESSARY.

The War Trade Board announces that it will not be necessary for applicants for licenses for the export of rubber manufactured goods to fill out Form X-2, known as the Supplemental Information Sheet. This form was to have been filled out and pasted on the back of application Form X, which procedure is now rendered unnecessary.

GENERAL LICENSE PERMITS ENTRY OF GOODS INTO U. S. IN TRANSIT ON FEBRUARY 16.

The War Trade Board has issued a general license through the Customs Service, authorizing the entry into the United States, without individual import license, of all commodities which were in transit on February 16, 1918, and for the importation of which an import license was unnecessary prior to the President's proclamation of February 14, 1918.

LICENSES REQUIRED FOR ALL IMPORTS AND EXPORTS.

THE purpose and effect of the proclamations issued by the President of the United States, February 14, are to subject to control by license the entire foreign commerce of the United States, and from and after February 16, 1918, no commodities may be exported from this country or imported into this country except under license.

E. H. HUXLEY.

The transportation of American armies to France and their maintenance makes necessary the use of every ton of shipping available. It does not mean, however, an embargo on exports or a prohibition of imports as the power will be exercised only for the purpose of winning the war.

With reference to the effect of this ruling on the rubber industry, the following statement from Edward H. Huxley, president of the United States Rubber Export Co., Limited, is interesting:

Referring to your request for a statement in connection with the latest proclamations of the President having to do with export and import, my view is that there is nothing in the control created by the proclamations which need give particular alarm to manufacturers. The effect upon the rubber industry will be apparent only after it is known how the control is to be exercised. It is obvious that the intent is to prevent the unnecessary use of shipping tonnage, and the extent to which imports or exports must be curtailed in order to give the Government the tonnage that it requires is yet to be seen. It is inconceivable that a large industry such as ours will be forced to shut down, either in whole or largely in part, except in face of the most serious conditions, and inasmuch as the total tonnage of rubber imported into the country in a year does not represent the use of very many ships, it does not seem to me that there is as yet serious danger from the standpoint of imports. From the standpoint of exports, the question is likewise wholly to be determined by the amount of tonnage required by the Government for the transatlantic trade. Fortunately for the exporter, there are certain raw products which are absolutely necessary in essential industries which must be imported, and as long as ships are allocated to bring in these products and must return for further cargoes, it is obvious that those ships will be available for export. For example, manganese ore from Brazil is necessary to the steel industry and the steel industry is necessary to the conduct of the war. Therefore, ships must be sent to Brazil to bring in that ore, and these same ships can carry down our exported manufactured products, and this can continue as long as manganese ore is imported. The same condition prevails with reference to sugar brought in from Cuba and in every case where imports must be maintained. That commercial exporting must take a secondary place is clear, but it is hard to believe that it will be wholly shut off from all markets. The Government must and undoubtedly does recognize that the export trade is a very potent factor in winning the war, because by export trade, trade balances may be liquidated which otherwise would necessarily be liquidated by means of exporting gold; and if favorable trade balances can be created by means of export trade, it means the much desired import of gold. There appears to be no question as to the Government realizing fully the need of maintaining its export business so long as it does not interfere with the more important use of ships to transport men and munitions, and recognizing this, it follows necessarily that the Government will interfere with the export trade as little as it can and only when absolutely necessary. The value of export trade has been recognized by England and France, and especially in England the export trade has increased even during the stress of the war. We cannot, of course, tell what is ahead of us, but we should be optimistic, and it is hard to believe that the situation will become so acute as to require the stoppage of this most important feature of our national economic life.

JUDICIAL DECISIONS.

McDOWELL *v.* HEMMING MANUFACTURING CO.—Court of Errors and Appeals of New Jersey. November 19, 1918. Ezra McDowell contracted with the Hemming Manufacturing Co. for the latter to manufacture insulating joints for which he was to supply the metal parts and Underwriters' Laboratory labels.

The agreement was that McDowell was to get the joints as required in lots of not less than 25,000 each. When the Hemming company defaulted, McDowell had on order with other concerns a number of the parts which he supplied, and he thereupon contracted with Hemming to manufacture that material, he canceling all that he could.

A judgment was granted McDowell and affirmed in the above court. (Atlantic Reporter, Volume 102, page 680.)

BLAU *v.* PUBLIC SERVICE TIRE & RUBBER CO., ET AL.—Court of Chancery of New Jersey, November 2, 1918.

There was an agreement between Blau and the company that if he would get some one to invest $50,000 as additional capital he should receive $5,000 which he was to invest in the company's stock.

Blau made arrangements for one Kritzman to make such an investment, but this transaction never took place. He had, however, entered into a corporation of similar nature in New York State, with the members of the New Jersey corporation.

The case was dismissed, there being no cause for action. (Atlantic Reporter, Volume 102, page 664.)

CUSTOMS APPRAISER'S DECISIONS.

WEBBINGS OF ARTIFICIAL SILK, COTTON AND INDIA RUBBER.—Elastic webbing whose component parts are artificial silk, cotton and india rubber, the value of the cotton being greater than either of the other two but not as great as their combined values, was assessed under paragraph 319 of the Tariff Act, 1913, at 60 per cent *ad valorem*.

Elastic braids composed of silk and india rubber were assessed at 60 per cent *ad valorem* under paragraph 358 of the same act.

A. Steinhardt & Bros., New York City, protested that they were dutiable under different paragraphs, but the decision of the collector was affirmed. (Treasury Decisions, Volume 34, No. 5, January 31, 1918.)

JELUTONG—CRUDE RUBBER.—L. Littlejohn & Co., New York City, protested against the assessment of duty upon jelutong or Pontianak as a non-enumerated unmanufactured article under paragraph 385 of the Tariff Act of 1913, claiming it was crude rubber.

The case was practically a retrial of a former protest by the same company. The protest was sustained and the collector directed to reliquidate the entry admitting the merchandise free of duty. (Treasury Decisions, Volume 34, No. 5, January 31, 1918.)

CALCINED MAGNESIA.—Schieffelin & Co., New York City, protested against an assessment of duty of 20 per cent *ad valorem*, under paragraph 17, of the Tariff Act of 1913, on calcined magnesia in packages of less than 2½ pounds gross weight, claiming it was properly dutiable under paragraph 42 of the same act which levies upon it a duty of 3½ cents per pound. This protest was overruled and the assessment of 20 per cent *ad valorem* affirmed. (Treasury Decisions, Volume 34, No. 6, February 7, 1918.)

RAINCOATS.—The protest of J. M. Martin, New York City, claiming that raincoats, imported by him, were properly assessable at 30 per cent *ad valorem*, under paragraph 256 of the Tariff Act of 1913, they being in chief value of cotton and not of wool as the collector had classified them, was upheld. (Treasury Decisions, Volume 34, No. 6, February 7, 1918.)

AUTOMOBILES WITH TIRES ATTACHED.—Duty was assessed on the automobiles and automobile chassis at issue at the rate of 30 per cent *ad valorem* under paragraph 119 of the Tariff Act of 1913. It was held that automobile and automobile chassis, imported with the necessary rubber tires attached to the wheels or where the tires come in detached, at least accompany the entire mechanism of which they form integral and essential parts, are properly classifiable for tariff purposes with the automobiles and automobile chassis as entireties under paragraph 119 of the Tariff Act of 1913.

It was further held that the provision in said paragraph for "finished parts of automobiles, not including tires" is absolutely independent of, and has no relation to, any of the other provisions in the paragraph, and that the words "not including tires" qualify the next preceding provision for "finished parts of automobiles," and no other, and the tires contemplated are those which are imported as separate entities, not those which accompany automobiles of which they are essential and integral parts.

This decision, written by Judge Fischer, overrules protests of S. Kjeldsen and Knauth, Nachod & Kuhne, who contended that such tires should be classified under paragraph 368 as manufactures of india rubber, and dutiable at 10 per cent *ad valorem*.

CHICLE.—These protests involve the classification of merchandise designated on the entries as "gum chicle, desiccated," "gum chicle, refined," and "gum chicle." These particular importations were shipped by the American Chicle Co. of Toronto, Ontario, consigned to the same company at Rochester, New York.

Duty was assessed at the rate of 20 cents per pound under paragraph 36 of the tariff act of 1913 as "chicle, . . . refined or advanced in value by drying, straining, or any other process or treatment whatever beyond that essential to the proper packing." Protestants claim that duty should have been assessed at 15 cents per pound under paragraph 36 as chicle, crude, or at 10 or 15 per cent *ad valorem* under the provisions of paragraph 385 of said act.

The examiner at the port of New York testified that the importations involved were similar to the merchandise involved in Sheldon & Co. *v.* United States (8 Ct. Cust. Appeals., —; T. D. 37123), wherein the decision of the board in G. A. 7984 (T. D. 36788) was affirmed. The record in that suit is incorporated and made a part of the record here and the action of the collector in each case was therefore affirmed and the protests overruled. (Treasury Decisions, February 14, 1918.)

TRADE-MARK DECISION.

BOSTON RUBBER SHOE CO. *v.* JOSEPH ABRAMOVITZ. From a decision by the Patent Office that there was no interference where the above parties applied, one to register the word "Hub," the other, the words "The Hub" and the picture of a hub, as trade-mark, respectively, on boots and shoes of canvas, leather and rubber, and on leather shoes, the Boston Rubber Shoe Co. appealed to the Court of Appeals of the District of Columbia. Here it was found that since the appellant had used the mark for over thirty years on rubber goods, this fact would entitle it to extend the use to other kinds of goods within the same classification. Again, the two classes of footwear mentioned were so interrelated in use by the public that the similarity of marks might cause confusion. Hence the appellee is not entitled to have his mark registered, but the question of the appellant's right to register its mark is left open for the further consideration of the commissioner. (Bulletin of the United States Trade-Mark Association, December, 1917, No. 12, Vol. 13.)

According to the Industrial Bureau of the Boston Chamber of Commerce there are now 2,586 submarine cables with a total aggregate length of 291,788 miles.

The Obituary Record.

WELL KNOWN AS AN INVENTOR OF RUBBER MACHINERY.

THE molded rubber goods trade in the past few years has become well acquainted with Arthur Jackson Wills, whose genial and happy disposition and alert, inventive mind won for him a recognized place in the rubber machinery trade. Mr. Wills' many friends will be surprised to learn of his sudden death from cerebral hemorrhage at his home in North Brookfield, Massachusetts, January 26, 1918.

ARTHUR JACKSON WILLS.

Mr. Wills was born at Orange, New Jersey, October 27, 1863. His early years were passed in the vicinity of New York and he completed his education at Hasbrouck Institute for Boys, Jersey City. Immediately following his graduation Mr. Wills became private secretary to a New York architect, with the intention of eventually becoming an architect himself. This plan being unavoidably frustrated, he took up railroad accounting and later the printing business.

Ten years ago he joined the staff of the B. & R. Rubber Co., North Brookfield, Massachusetts, and quickly perceived the need of special machinery which he forthwith invented and perfected. About five years ago Mr. Wills withdrew from rubber manufacturing and established himself in the business of manufacturing his inventions, some of which had application to other lines than rubber. Mr. Wills leaves a widow and three children.

PROMINENT IN MANY LINES.

Daniel S. Howard, vice-president of the Mayflower Rubber Co., South Braintree, Massachusetts, died at the Providence Hospital, Washington, District of Columbia, on February 12, after an illness of five weeks. He had gone to Washington to consult with government agents regarding supplies for war purposes, and was attacked by typhoid fever.

Mr. Howard was the son of the late Daniel S. Howard, for many years a leading shoe manufacturer in Brockton, Massachusetts. He was born in that city February 15, 1879. His education was acquired in the public and high schools there, supplemented by one year at Brown University, and a full course at the University of Pennsylvania, from which he was graduated with honors in 1902.

He entered the shoe manufacturing business, becoming secretary of the R. B. Glover Co. in 1904, and succeeding Mr. Glover as president at that officer's death. He was also president of the Emerson Fabric Co., Rockland, Massachusetts; treasurer of a publishing company which recently sold its publication, and trustee of the Rockland Trust Co.

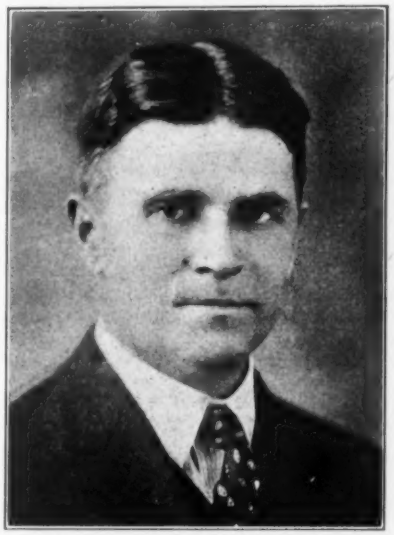
Last September Mr. Howard associated himself with the Mayflower Rubber Co., and was elected vice-president, having charge of the selling end of the business.

Mr. Howard was prominent in the business circles of Brockton, being a member of the Commercial and University clubs and of Revere Lodge of Masons, a trustee of the Brockton Hospital, for four years president of the Young Men's Christian Association, to whose building he was the first subscriber, and a leader in the activities of the First Baptist Church. He is survived by a widow, twin sons, his mother and two sisters.

Of genial, democratic nature and of attractive address, he made friends in all circles. He was of sterling Christian character and a power for good in the community in which he lived. His loss is deeply felt.

A NOTED PHYSICIST, WRITER AND LECTURER.

James Edward Latta, general agent of the Underwriters' Laboratories, Inc., died after a short illness at Washington, District of Columbia, January 17. He was a graduate of the University of North Carolina, the state of his birth, and of the Graduate School of Harvard University. His engineering training was obtained at the Polytechnic Institute of Brooklyn, New York; at Stevens Institute of Technology, and at the shops of the Westinghouse Electric & Manufacturing Co., and those of the Hooven, Owens, Rentschler Co. In 1903 he was appointed assistant professor of physics in the University of North Carolina, soon becoming acting head of the department of physics and applied electricity, and after a year and a half being made professor of electrical engineering. While serving his old alma mater until 1909, Mr. Latta frequently was called upon as a consulting and supervising engineer in various parts of the country. In 1909 he became associated with the Harrison, New Jersey, works of the General Electric Co., where for seven months he conducted an employes' educational course in applied electricity and illuminating engineering. Subsequently he was engaged in power-plant construction and operation in the Southwest. In the summer of 1911 he became technical editor of "Electro-craft"; when that publication was consolidated with the "Electrical Review and Western Electrician," six months later, Mr. Latta became an associate editor on the staff of this journal, having charge especially of the sections on electrical construction and inspection. In December, 1913, he was appointed special agent of the Underwriters' Laboratories, Inc., and about a year ago was advanced to the important position of general agent. While making his headquarters at Chicago, Illinois, Mr. Latta had traveled very extensively in all parts of the country in the last four years, representing the labora-



J. E. LATTA.

tories at a great many conventions, meetings and conferences, and helping to spread the gospel of conservation by elimination of the fire hazard. It was a trip of this kind that brought him to Washington, where on January 12 he was taken down with pneumonia, to which he succumbed five days later. He was buried last Saturday at his old home, Durham, North Carolina. Mr. Latta was an excellent speaker and writer and for nearly seven years had done much to promote good building construction and safe operating practice. His most recent contribution to the fight against loss of life by fire consists of a scenario, "The Unbeliever Convinced," a motion picture produced in Chicago, and called for and exhibited all over the United States as a pointed lesson in fire prevention. Mr. Latta had all the admirable qualities of a true southerner, and wherever he went made friends by his kindly geniality. His sudden death at the age of only 45, the prime of life, comes as a distinct shock to his former associates and other numerous friends.

LONG KNOWN TO THE RUBBER TRADE.

R. T. Davis, Chicago division manager of the Boston Woven Hose & Rubber Co., passed away in Chicago on February 10, due to complications following an operation for appendicitis.

He had been employed by the company for 17 years and was in charge of the Cleveland, Ohio, branch until its discontinuance in 1910, when he was transferred to Chicago as manager of the consolidated Chicago and Cleveland divisions.

Mr. Davis was particularly well-known in the rubber trade and its sympathy will be extended to his associates in the Boston Woven Hose & Rubber Co.

A POPULAR RUBBER GOODS SALESMAN.

S. George Mills, for over a quarter of a century a salesman with the C. J. Bailey Rubber Co., Boston, Massachusetts, died of pneumonia on January 29, at his residence in the Dorchester district of that city.

Mr. Mills was one of the best-known salesmen in the rubber business in New England. He was born of English parentage in Medford, Massachusetts, and after a public school education entered the employ of the American Rubber Co. at its Boston office. Soon after, however, he went to the C. B. Bailey company's store as a boy, working steadily up to the position of head salesman, and making friends of all the customers of that house. Of jovial disposition, he had a large circle of social and business friends. He is survived by a widow and a sister.

TREASURER OF THE DRIVER-HARRIS WIRE CO.

George J. Althen, who died February 15, was treasurer of the Driver-Harris Wire Co., Harrison, New Jersey.

Mr. Althen was born in Newark, New Jersey, August 6, 1857, and was for many years engaged in the grocery business. For the past four years he had been connected with the Driver-Harris Co. and was well known on account of his affiliation with the National Credit Men's Association, for which he represented New Jersey on the executive committee.

A NEW YORK SALES MANAGER.

George C. Penboss, manager of the United & Globe Rubber Manufacturing Cos.' store in New York City, died in St. Luke's Hospital, Manhattan, following an operation. Mr. Penboss was born at New Castle, New South Wales, Australia, in 1866. He was a prominent electrical engineer and installed the first inside telephone communication in New South Wales. He came to New York City in 1901 and was connected with the Revere Rubber Co. and later, until his death, was manager of the New York sales department of the United & Globe Cos. He was a member of Empire Council, R. A., and is survived by his widow and one daughter.

ARMY AND NAVY AWARDS.

NAVY SUPPLY AWARDS.

THE following awards have been made during the past month for furnishing navy supplies:

AIR HOSE.—$60,176.10. Empire Rubber & Tire Co.

RUBBER CEMENT.—550 gallons, $790.25. Goodyear Tire & Rubber Co.

RUBBER COMBS.—180,000, $4,300. American Hard Rubber Co.

PANAMA CANAL AWARDS.

The following awards have been made during the past month by the general purchasing officer of the Panama Canal:

HOSE.—30 pieces, $174.96. Republic Rubber Co.

INNER TUBES.—48, $90.24. Essex Rubber Co.

PACKING.—300 pounds rubber sheet, $63. The B. F. Goodrich Co.

PACKING FOR GASOLINE ENGINE.—100 pounds, $70. The Danubil Co., New York City.

RUBBER BALLS.—$8.63. The B. F. Goodrich Co.

ARMY MEDICAL SUPPLIES.

The following awards have been made during the past month by the surgeon general of the Army:

GAS MASK PARTS.—625,000 mouthpieces, $52,250; 850,000 feet flexible hose, $472,175, total, $524,425. United States Rubber Co., New York City.

GAS MASK PARTS.—625,000 rubber mouthpieces, $50,000; 532,500 nose pads, $9,052.50; 600,000 feet flexible hose, $358,000; total, $417,852.50. The B. F. Goodrich Co., Akron, Ohio.

GAS MASK PARTS.—600,000 feet flexible hose, $336,000; 600,000 feet flexible hose, $336,000; total, $672,000. Goodyear Tire & Rubber Co., Akron, Ohio.

GAS MASK PARTS.—200,000 feet flexible hose, $96,000. Continental Rubber Works, Erie, Pennsylvania.

GAS MASK PARTS.—$33,567.50. Mayflower Rubber Works Co., South Braintree, Massachusetts.

GAS MASK PARTS.—250,000 feet flexible hose, $95,000. Miller Rubber Co., Akron, Ohio.

GUM TUBING.—5,000 yards, as follows: 1,500 yards, ⅛-inch by 1/32-inch by 3/64-inch, $1.70 per pound; 2,000 yards, 3/16-inch by 3/64-inch, $1.70 per pound; 1,500 yards, ¼-inch by 1/16-inch, $1.70 per pound; total, $944.44. Hodgman Rubber Co., Tuckahoe, New York.

HAND ATOMIZERS.—2,000, $1,640. De Vilbiss Manufacturing Co., New York City.

HARD RUBBER SPRINKLERS.—208⅓ dozen, $494.79. United States Rubber Co., New York City.

HOSPITAL SLIPPERS.—50,000 pairs, $40,000. United States Rubber Co., New York City.

RUBBER BANDAGES.—2,000, $990. Parker, Stearns & Co., New York City.

RUBBER BANDAGES.—2,000, $990. Parker, Stearns & Co., Inc., New York City.

RUBBER BANDS.—1,000 pounds assorted, $1,250. Hodgman Rubber Co., New York City.

RUBBER ICE BAGS.—1,000, $700. Hodgman Rubber Co., New York City.

RUBBER ICE BAGS.—2,000, $1,400. Hodgman Rubber Co., Tuckahoe, New York.

RUBBER TIPS FOR CRUTCHES.—25,000. $562.50. Canfield Rubber Co., New York City.

RUBBER TIPS FOR CRUTCHES.—25,000. $562.50. Canfield Rub-16, $1.85 per 100; 10,000 No. 18, $2.35 per 100; No. 19, $2.60 per 100; total, $680. Canfield Rubber Co., Inc., New York City.

RUBBER TUBING.—2,000 yards, $377.78; 2,000 yards, $377.78; 1,000 yards, $188.89; total, $944.45. Faultless Rubber Co., Inc., Ashland, Ohio.

STOMACH TUBES.—1,000, $6.90 per dozen. Davol Rubber Co., New York City.

The Editor's Book Table.

THE CHEMISTRY OF COLLOIDS. PART I: COLLOIDAL CHEMistry, by Richard Zsigmondy; translated by Ellwood B. Spear. Part II: Industrial Colloidal Chemistry, by Ellwood B. Spear, and a chapter on Colloidal Chemistry and Sanitation, by John Foote Norton. John Wiley & Sons, Inc., New York City, and Chapman & Hall, London, 1917. (Cloth, 6 by 9 inches, 288 pages.)

PART I of this text is a concise and interesting treatment of the nature, properties and theory of colloids, with chapters on inorganic and organic colloids. Part II takes up some important industrial applications of colloidal chemistry. Among these is rubber. Latex, coagulation, hot and cold vulcanization and theories of vulcanization are discussed briefly and the problems of the regeneration of rubber are mentioned as exactly opposite to those of vulcanization. The entire work is an admirable presentation of the chemistry of colloids by one of its leading exponents, supplemented by a clear discussion of its application to practical industrial problems.

DYKE'S AUTOMOBILE AND GASOLINE ENGINE ENCYCLOPEDIA. Sixth edition. A. L. Dyke, St. Louis. (Cloth, 6½ by 10 inches, 895 pages, 492 illustrations, $3.)

This well-known handbook on the automobile and gas engine is characterized by accuracy and thoroughness in the treatment of the intricacies of these machines, as regards construction, operation, care and repair as well as the same regarding the accessory features of carburetion, cooling and lubrication, ignition, electric systems and tires. The section on tires deals with tire construction and care, the causes and remedies for tire and inner tube troubles, with methods of repair, patching and vulcanizing. The volume forms an indispensable compendium of instruction for the motorist and repair man.

LIVE ARTICLES ON ACCIDENT-PREVENTION. NUMBER FIVE. Underwriter Printing and Publishing Co., New York City. (16 mo. 143 pages cloth. Price, $1.05.)

This is the fifth of a series of small compact volumes of reprints of special articles which have previously appeared in the "Weekly Underwriter," and are thus preserved in convenient form for reference. The articles are worthy the careful perusal of real estate owners, proprietors and superintendents of industrial plants, while there are several which are of special interest to those engaged in certain lines of production. One article on "Accident Causes and Prevention" is illustrated by over 50 photographs of faulty sidewalks, gratings, cellar doors, railings, stairways, etc., which should cause a property owner to make a thorough inspection of his real estate holdings to avoid being held liable for accidents. An article on lead poisoning, another on the principal hazards of the chemical industry, and one on occupational diseases are of special interest to rubber goods manufacturers. Rubber soled shoes are prescribed for workers in explosive material mills, helmets are required in chemical factories where acids are made or used in large quantities, as are also rubber boots, rubber gloves and protective aprons for workmen in high acid plants.

PROCEEDINGS OF THE FIRST AGRICULTURAL CONFERENCE, Malaya, held at the Chamber of Commerce, Kuala Lumpur, April 25-28, 1917, including the papers contributed to the conference and reports of the discussions. Edited by L. Lewton-Brain and B. Bunting, Kuala Lumpur, F. M. S. (Board cover, 178 pages. Price $2 [F. M. S. currency].)

In addition to the proceedings of the First Agricultural Conference of Malaya, this volume contains a number of interesting and important papers contributed by well-known scientists and representative estate managers, together with the discussions following the reading of these papers.

Although the cultivation of food crops and notes on coconuts find a place, the cultivation and preparation of rubber, and pests and diseases of rubber are the principal subjects treated. Thus there are papers on thinning out, cultivation, drainage and manuring, seed selection, diseases of the leaves, stem, and root of *Hevea*, clean clearing, treatment of the white ant in Malaya, preparation of rubber and factory methods, and health and sanitation on estates with special regard to the danger of malaria.

Abstracts from most of these articles have appeared in THE INDIA RUBBER WORLD from time to time; but there will be many who will desire to have the volume with the full text accompanied by the discussions.

THE MEDICAL WHO'S WHO, 1917-18. THE FULTON-MANDERS Publishing Co., Brownlow House, 51 High Holborn, London, W. C. 1. (Crown octavo, 1162 pages, cloth. 10/6d. net.)

This publication from overseas, which has been brought up-to-date, has been increased by about 100 pages but reduced in bulk. It contains approximately 20,000 biographies of British medical men, which have been duly verified. The names of those in active service are starred and particulars given as to their service. The volume includes obituary lists for 1916 and for 1917 up to the end of November, including data concerning those deceased in service, due to whatever cause. There is also an index of names which makes the book complete as a reference guide.

NEW TRADE PUBLICATIONS.

"THE Ribbon and Seal" is the title of a breezy "little journal of intimate gossip," "published now and then" by the United States Rubber Export Co., Limited, New York City. Book 1, No. 2, now before us, is full of optimism and bright personal comment and experience concerning the personnel of the company. It is unique as a house organ in that it is multigraphed in double column arrangement on standard letter paper, and on one side only, its seventeen sheets being gathered into a blue paper folder, punched as for a loose-leaf system and held together by a heavy silk cord.

* * *

The B. F. Goodrich Rubber Co. has recently published two repair manuals, the "Repair Manual of the Goodrich Fabric Tire" and the "Repair Manual of the Goodrich Silvertown Cable Cord Tires." While the former is sent on request to proprietors of repair shops, the distribution of the latter is restricted to those who are known to have the necessary knowledge of the construction of cord tires to repair them properly. Both pamphlets are replete with carefully arranged instruction, both in word and illustration, and are books well worth securing by those who make a business of tire repairing.

* * *

A very interesting and instructive booklet has been issued by the Polack Tyre and Rubber Co., New York City, in which the advantages of their European type tires, from the view-point of truck manufacturers and purchasers, are very clearly demonstrated. In this connection the following points are discussed to the credit of the high cushion type of solid tire as built by the Polack company: reduction of operating cost and the tire factor in the longevity of trucks by aiding in the matter of "balance." In mileage guarantee for its European type no company exceeds the Polack. Comparative tables show that this fact signifies to the user, savings in cost on the mileage basis varying by tire size from 5 to 20 per cent, besides doubling truck life and economy in fuel consumption.

* * *

The Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut, has sent out a large circular showing a number of styles of its goods, together with a net price-list.

News of the American Rubber Trade.

ANNUAL ELECTION OF PORTAGE RUBBER CO.

AT the last annual meeting of The Portage Rubber Co., Barberton, Ohio, the board of directors was reduced from eight to seven. James Christy was reelected president; M. S. Long, vice-president; L. E. Larson, secretary, and W. W. Wildman, treasurer and general manager. Each of these officers, except the secretary, is a member, *ex officio*, of the board of directors. Other directors elected were J. D. Raw, John Kerch, Fred H. Snyder and O. S. Welty.

GENERAL ELECTRIC CO. PROSPERS.

The year 1917 ended as the most prosperous in the history of the General Electric Co., Schenectady, New York. The orders for the year amounted to $245,000,000, as against $169,582,058 in 1916, while sales totalled $195,000,000, compared with $132,242,290 in 1916. The stock of the company is popularly quoted as paying eight per cent in dividends, but as a matter of fact it is now paying 12, of which eight per cent is paid in cash and four in stock, semi-annually. The rights to subscribe to new stock expired February 15.

UNITED STATES RUBBER CO. ANNUAL MEETING.

The United States Rubber Co. at its annual meeting, called at New Brunswick, New Jersey, for March 19, will consider amendments to the by-laws. Among them is a move to change the date of the annual meeting, after this year, from March to April, falling in either case on the third Tuesday of the month. A second amendment proposed is to increase the number of directors from 21 to 25. Others provide for the calling of meetings of directors by the chairman instead of the president, and making the chairman of the board of directors the executive officer of the company, and in case there is no chairman or vice-chairman the president shall be chief executive officer. Other amendments, specifying the duties of assistant secretaries, assistant treasurers and the comptroller, will be considered.

MADERO BROTHERS IN BANKRUPTCY.

An involuntary petition in bankruptcy has been filed against Madero Brothers, Inc., 115 Broadway, New York City, dealers in drugs and chemicals. The assets of the company are given as $300,000, and liabilities about $350,000. This action is the direct result of alleged irregularities by the former general manager of the chemical department in conjunction with a contract for hospital supplies for Italy that was entered into without knowledge of the officials.

AMERICAN BANKS FOR BRAZIL.

The second American bank to open branches in Brazil is the American Mercantile Bank of Brazil, which is incorporated under the laws of the State of Connecticut. The Guaranty Trust Co. and the Messrs. Seligman, bankers, both of New York, are the chief stockholders. The initial capital of the bank is $2,000,000, and its principal Brazilian headquarters will be in the City of Para, the center of the rubber industry. It has been given a decree to operate for ten years.

The bank at Para will be under the managership of Arthur Jones, who has had many years experience in the Amazon Valley. His assistant managers will be J. A. Seaborg and Gabriel Weill, both of whom are well known in banking circles here and who have had much experience in South America. The new bank will devote its activities chiefly to the northern States of Brazil. The opening of other branches at Manaos and Pernambuco is contemplated.

DIVIDENDS.

The B. F. Goodrich Co., Akron, Ohio, declared a quarterly dividend of one dollar on preferred stock of record February 5, payable February 15; and has declared a dividend of 3½ per cent on the preferred stock, 1¾ per cent payable on April 1 to preferred stockholders of record at the close of business March 22, and 1¾ per cent payable on July 1 to preferred stockholders of record at the close of business June 21; and a quarterly dividend of 1 per cent on the common stock, payable on May 15 to common stockholders of record at the close of business May 3.

The New York Rubber Co., New York City, has declared an extra dividend of 4 per cent in addition to its 8 per cent dividend which was payable February 1.

The Hawkeye Tire and Rubber Co., Des Moines, Iowa, at its third annual meeting ordered the semi-annual dividend on the 8 per cent preferred stock and declared a dividend of 6 per cent on the outstanding common stock as of February 1.

The Plymouth Rubber Co., Canton, Massachusetts, has declared its regular quarterly dividend of 1¾ per cent on preferred stock of record February 21, payable March 1.

The General Electric Co., Schenectady, New York, has declared its regular quarterly dividend of 2 per cent on stock of record March 9, payable April 15.

The Ajax Rubber Co., Inc., has declared its regular quarterly dividend of 1½ per cent on stock of record February 28, payable March 15.

The Mansfield Tire & Rubber Co., Mansfield, Ohio, has declared dividends of 7 per cent on preferred stock and 8 per cent on common stock.

E. I. du Pont de Nemours & Co., Wilmington, Delaware, have declared regular quarterly dividends of 4½ per cent on common stock of record February 28, payable March 15, and of 1½ per cent on preferred stock of record April 10, payable April 25.

RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of rubber manufacturing companies on February 25 are furnished by John Burnham & Co., 115 Broadway, New York City, and 41 South La Salle street, Chicago, Illinois.

	Bid.	Asked.
Ajax Rubber Co. (new)	53	54½
Firestone Tire & Rubber Co., common	96	98
Firestone Tire & Rubber Co., preferred	96	100
The B. F. Goodrich Co., common	42¾	45
The B. F. Goodrich Co., preferred	93	97
Goodyear Tire & Rubber Co., common	135	139
Goodyear Tire & Rubber Co., preferred	98	100
Kelly-Springfield Tire Co., common	43	45⅛
Kelly-Springfield Tire Co., preferred	75¾	84
Miller Rubber Co., common	134	137
Miller Rubber Co., preferred	95	98
Portage Rubber Co.	113	115
Swinehart Tire & Rubber Co.	...	35
United States Rubber Co., common	56½	57½
United States Rubber Co., preferred	100½	101½

PATENT REFORM AT LAST?

The Patent Office Society announces that upon request of the National Research Council, a composite committee has been created to make a preliminary study of the problems of the United States Patent Office and its service to science and the useful arts. This committee, which is expected to meet in Washington shortly, is understood to comprise, at the outset, the following: Leo. H. Baekeland, William F. Durand, Thomas Ewing, Frederick P. Fish, Robert A. Millikan, E. J. Prindle, Michael I. Pupin and S. W. Stratton.

Anyone who is interested in patent reform is invited to forward his suggestions to William F. Durand, National Research Council, Washington, District of Columbia.

TRADE NOTES.

The Western Machine Products Co. has been organized with capital stock of $100,000, to carry on work for the Government, and will occupy a portion of the building owned by The Marvel Accessories Manufacturing Co., St. Clair avenue and East 73rd street, Cleveland, Ohio, and use its tool equipment. L. A. Katz, president of the new company, is treasurer of the Marvel company as well.

The B. & M. Co., Eugene, Oregon, a tire and vulcanizing concern, announces that Henry A. Mitchell has sold his interest in the company to F. M. Porterfield of Fall Creek, who will continue the business with the remaining associate, C. L. Bartholomew. The company handles Silvertown and safety tread tires and automobile and tire accessories.

E. M. & F. Waldo, 11 Broadway, New York City, have purchased a substantial interest in Harmon Color Works, Inc., College Point, Long Island, New York, and become exclusive selling agents for the latter.

The Brazos Valley Mills, West, Texas, manufacturers of single filling duck and Osnaburgs, have appointed the J. Spencer Turner Co., 86 Worth street, New York City, selling agent.

The Scioto Rubber Co., Columbus, Ohio, has completed an addition to its plant, costing about $5,000. It was erected in order to permit the company to increase its product on government contracts now being executed.

The Rouden Manufacturing Co., Brooklyn, New York, announces that in future all its departments will be located at the main factory, 1361-1365 Atlantic avenue.

The Pneumatic Manufacturing Co. has removed from 625 Seventeenth street to 124-128 Atlantic avenue, Brooklyn, New York.

The Plymouth Rubber Co., Canton, Massachusetts, reports net sales for 1917 in excess of $3,000,000, the largest year's business in the history of the company.

The Petley Rubber Manufacturing Co., Milwaukee, Wisconsin, announces the award of a city contract for 6,000 feet of 2½-inch underwriters' fire hose.

The Pan-American Rubber Co., 721 Grand avenue, Milwaukee, Wisconsin, recently purchased the plant of the New Ideal Plaster Board Co., South Milwaukee. It consisted of a brick building, 50 by 200 feet, which it has cost about $10,000 to complete, and three acres of land with track facilities on the Chicago & Northwestern railroad.

The Miller Rubber Co., Akron, Ohio, has appointed the Farrell Auto & Supply Co., 1178 Bedford avenue, Brooklyn, New York, its local distributer in that city.

Katama Mills, Lawrence, Massachusetts, announces through the Boston office that a two-story addition to the plant, 232 by 90 feet, is being erected, in which 120 Crompton & Knowles tire-duck looms will be installed, with the expectation that the weekly product of the mills will thereby be increased about 60,000 pounds.

The H. W. Johns-Manville Co., Madison avenue and 41st street, New York City, announces the opening of an office and salesroom at 1015 A street, Tacoma, Washington, in charge of P. B. Keyes.

The Electric Hose & Rubber Co., Wilmington, Delaware, has moved its Philadelphia branch office to 34 North Fifth street, Philadelphia, Pennsylvania.

Charles E. Wood, dealer in crude rubber, has removed his offices to 149 Broadway, New York City.

The Cell Drier Machine Co., Taunton, Massachusetts, announces that H. W. Butterworth & Sons Co., Philadelphia, Pennsylvania, has purchased the right to build cell driers for the trade.

As a result of the five days factory closing order of last month, the La Grange duck mill of J. Spencer Turner Co., was changed to electric power. Thus, three out of the five duck mills of the company are now operated by hydro-electric power.

The J. P. Devine Co., 1372 Clinton street, Buffalo, New York, is to build a one-story brick and steel copper shop at a cost of $6,000, to add to the facilities of its plant.

G. Amsinck & Co., Inc., importers of crude rubber and other South and Central American products, 6 Hanover street, New York City, has sold its stock control to the American International Corporation.

The Anker Engineering Co., Philadelphia, Pennsylvania, has taken over the sales management of the product of the Allen Machine Co., Erie, Pennsylvania, for Philadelphia, New Jersey, and the New England States.

The Buffalo Weaving and Belting Co., Buffalo, New York, has increased its capital from $750,000 to $1,750,000.

The Osborn Manufacturing Co., Cleveland, Ohio, has changed its name to The Cleveland Osborn Manufacturing Co., Inc., in order to avoid confusion with other companies having similar names.

The Hamilton Rubber Manufacturing Co., Trenton, New Jersey, has appointed A. Boyd Cornell general manager. He is one of the prominent rubber men of the city and was until recently secretary of the Empire Tire & Rubber Co., with which he had been connected for fifteen years.

At the annual meeting of W. H. Salisbury & Co., Inc., Chicago, Illinois, held February 5, 1918, M. B. Salisbury was elected president; Henry H. Salisbury, vice-president and treasurer, and Richard H. Geier, secretary. L. H. Winne and J. C. Kettner were reelected directors, with George J. Holmes as a new member of the board of directors.

The company report for the 1917 year's business was very satisfactory, and the usual one-half per cent per month dividend was declared payable for the first six months of 1918.

The Winnsboro Mills, Winnsboro, South Carolina, advise that they are just starting operations in their new mill on the manufacture of novelty tire fabrics, and that it is believed within two or three months the plant will be in full operation. At the present time no further additions are contemplated in the way of buildings and machinery. The mill completed will contain 35,000 spindles. The entire production has been sold by contract to the United States Rubber Co. Lockwood, Greene & Co. of Boston are the managers of the Winnsboro Mills.

Vulcanized Products Company, Muskegon, Michigan, has changed its name to Curtis Tire & Rubber Co., the latter being more descriptive of the present character of its business. It has recently increased its authorized capital from $200,000 to $1,000,000 in order to finance properly the rapid growth of its business. Its officers are as follows: Curtis R. Gray, president; Henry P. Crowell, vice-president; Walter N. Macdonald, secretary; Thomas C. Akin, treasurer.

The Osborn Engineering Co., Cleveland, Ohio, are drawing plans and specifications for the new factory of the Armstrong Rubber Co., Inc., at Garfield, New Jersey, which will be equipped with the most up-to-date machinery for manufacturing 500 tires and 1,000 tubes per day.

Harry Schwartz has opened an office in Seattle, Washington, for the Charles T. Wilson Co., Inc., crude rubber importer, 56 Wall Street, New York City.

The business of the late Arthur Jackson Wills, North Brookfield, Massachusetts, maker of rubber machinery, will be continued under the management of M. B. Wills.

Alfred B. Mac Namara, Elston E. Wadbrook and Lewis P. Mac Namara announce the incorporation of the firm of Mac Namara & Wadbrook, Inc., to do a general brokerage business in crude rubber, with offices at 16 Exchange Place, New York City.

W. H. Whittaker Co., 250 Front street, New York City, importer and exporter of talc, clays, colors and minerals, announces a change of name to Whittaker, Clark & Daniels, Inc.

PERSONAL MENTION.

A. A. Lightfoot, formerly Pennsylvania representative of The Marathon Tire and Rubber Co., Cuyahoga Falls, Ohio, succeeds H. F. Smith as division manager in Chicago.

William Ralph Voss, formerly traveling representative of The B. F. Goodrich Co., Akron, Ohio, has been appointed branch manager of The Hawkeye Tire & Rubber Co., Des Moines, Iowa, at Davenport, Iowa.

Harry Keas, formerly with the Southwest Tire Co., Kansas City, Missouri, has been appointed traveling representative of The Hawkeye Tire & Rubber Co., Des Moines, Iowa, in the State of Kansas.

Edwin J. Brown has been appointed branch manager of The Fisk Rubber Co., Chicopee Falls, Massachusetts, at 230 East Avenue, Rochester, New York.

Edwin P. Jones has been appointed manager of the Brooklyn, New York, branch of the Firestone Tire & Rubber Co., Akron, Ohio. He was formerly a salesman at the Philadelphia branch.

C. A. Mullenix is the newly appointed manager of The Marion Tire & Rubber Co., Marion, Ohio. W. H. Holverstott remains as president and general manager.

Charles F. U. Kelly, Inc., 1834 Broadway, New York City, the sales department of The Dreadnaught Tire and Rubber Co. of Maryland, Baltimore, Maryland, has appointed L. G. Lehousse resident Pacific Coast manager, with headquarters at 2 Kansas Street, San Francisco, California.

Ernest E. Pickering, recently supervisor of sales in Nebraska and the Dakotas, has been promoted by the Ajax Rubber Co., Inc., New York City, to the position of Pacific Coast manager, with headquarters in San Francisco, succeeding William Riley, resigned.

C. B. Kieffer succeeds Ernest E. Pickering as supervisor of sales in Nebraska and the Dakotas for the Ajax Rubber Co., Inc., New York City.

Norman Tripp has been appointed manager of the tire and rubber goods department of The Automobile Supply Co., Inc., 755 Broadway, Tacoma, Washington.

A. D. McKenney, formerly with the Gulf Refining Co., now represents the Pennsylvania Rubber Co., Jeannette, Pennsylvania, in the State of West Virginia.

W. F. Gammeter, Cadiz, Ohio, has put into service a two-ton auto truck for long or short distance delivery of orders of sufficient size to warrant the trip. Such deliveries will be made at reasonable cost and further to aid transportation, customers' products will be carried to any point on the return trip.

James P. Hunting has been appointed special representative in charge of automotive equipment sales of the General Asbestos & Rubber Co., Charleston, South Carolina, at 1877 East 90th street, Cleveland, Ohio.

George W. Perks, formerly of the American Seeding Co., Springfield, Ohio, has accepted the appointment of director of engineering with The B. F. Goodrich Co., Akron, Ohio, succeeding A. P. Lohman, resigned after 22 years' service.

Arthur V. McDowell, superintendent of the Goodyear Rubber Co., Middletown, Connecticut, was recently elected mayor of that city on the Republican ticket. He was previously one of the aldermen of the city.

R. Godoy has been appointed general manager of the Cuban Tire and Rubber Company, Havana, Cuba, following the resignation of Thomas C. Gould.

W. S. Rubdle, late of the O'Sullivan Rubber Co., New York City, has joined the Goodrich Textan Sales force under E. R. Miller.

E. Stevenson, director of Aldens Successors Limited, London, was in New York City last month.

M. L. Heminway, formerly sales manager of the Davidson Rubber Co., Boston, Mass., has been appointed secretary of the War Service Committee of The Rubber Industry of the U. S. A., with offices with The Rubber Association of America, Inc., 17 Battery Place, New York City.

ELSTON ERNEST WADBROOK.

E. E. WADBROOK is one of the best-known and best-liked men in the crude rubber trade, and it is certainly a pleasure to note that his name will hereafter appear more prominently in the list of houses specializing in that line, for the announcement is now made that he has associated himself with Alfred B. and Lewis P. Mac Namara under the style of Mac Namara & Wadbrook, Inc., crude rubber brokers, with offices at 16 Exchange Place, New York City.

E. E. WADBROOK

It seems hardly necessary to introduce Mr. Wadbrook, but the following facts may be unknown to a few of our readers. He was born in Teddington, England, in 1866; was first a lawyer's clerk, then private secretary to a member of Parliament. In 1886, through the recommendation of Baron Rothschild, he went to Rio Janeiro, where he was connected with the London & Brazilian Bank and learned the banking end of the rubber business. He first came into direct touch with the crude rubber trade in 1896, when he went to Para to manage the office of R. F. Sears & Co. there. After two years he became affiliated with the Crude Rubber Co., New York City, then in 1901 joined the house of Reimers & Co., as manager of its Boston branch. When this concern was succeeded by Poel & Arnold and later by Arnold & Zeiss, he continued with them, going to New York City in 1909 as assistant manager, and last month, as stated above, he became a member of Mac Namara & Wadbrook, Inc.

Mr. Wadbrook was one of the founders of the New England Rubber Club, predecessor of The Rubber Association of America, Inc. He is also a third degree Mason, a member of St. George's Society and the Arkwright Club, New York City; the Knickerbocker Country Club, Englewood, New Jersey; Old Whitgiftians Association, Croydon, England, and past president and honorary life member of the Victorian Club, Boston, Massachusetts. He is a fine golf player, a thorough rubber man, and a right jolly good fellow. His many friends wish him success and prosperity in his new venture.

COMPOSITE FIBER CONTAINERS FOR AUTOMOBILE ACCESSORIES.

When every effort is being made at the present time to conserve the supply of tin, to learn that the manufacturers of fiber composite containers have promptly responded to the demand for tin conservation, is interesting. By the installation of labor-saving machinery especially designed for the production of containers largely used by the manufacturers of automobile rubber accessories, The St. Louis Paper Can & Tube Co., St. Louis, Missouri, is in a most favorable position to supply the rubber trade in a satisfactory manner.

TRADE NOTES.

The $1,000,000 of preferred stock offered the public in October by the Sprague Tire & Rubber Co., Omaha, Nebraska, was oversubscribed on February 13, and $60,000 was returned to those who sent in subscriptions too late. The excavation for the new factory on Izard street will probably be completed soon and the company expects to be manufacturing tires and tubes by July 1.

The Alliance Rubber Co., Alliance, Ohio, subsequent to going into the hands of H. C. Koehler, receiver, has been dissolved by the Court of Common Pleas. The receipts on liquidation were sufficient to pay the first and second mortgages, city, state and franchise taxes, and receiver's fees and expenses.

The Alliance Tire & Rubber Co., now of Pittsburgh, Pennsylvania, which was the holding company for the above firms, is suffering the indictment of its president, Milton Bejach, and his New York City broker, Warren C. Daniel, together with an associate by the name of Bond, by the Federal Grand Jury of New York for misuse of the United States mail in connection with the sale of the capital stock of the company.

The Akron Tire Co., Long Island City, New York, is building an addition to its factory.

The Burdick Tire and Rubber Co., 220 South State street, Chicago, Illinois, has purchased a four-acre tract of land in Noblesville, Indiana, on which it will build the first unit of a tire factory. It has also leased the Heylman Building on Conners street, which contains 10,000 square feet of space, where it will in the meantime manufacture its tires.

The Carlisle Cord Tire Co., New York City, has appointed Charles E. Reiss its wholesale distributer in the East, under the name of the Carlisle Cord Tire Sales Co. Mr. Reiss is also the Hupmobile distributer and will retain his interest in that business as well.

The Ohio Rubber Co., Cleveland, Ohio, has increased its common stock from $200,000 to $300,000 and its preferred capital stock from $50,000 to $200,000. It has opened a branch office in Detroit, Michigan, in charge of E. H. Griffith.

The Hawkeye Tire and Rubber Co., Des Moines, Iowa, has added to its factory equipment and expects to run at full capacity during the coming season, turning out approximately 600 tires and 400 tubes daily. John T. Christie is president of the company.

The I. J. Cooper Rubber Co., distributer of Racine tires for the State of Indiana and part of Illinois and Kentucky, has removed to 219 West Vermont street, Indianapolis, Indiana, where it operates one of the large tire and accessory stores in the Middle West.

The Eldridge Buick Co., 802 East Pike street, Seattle, Washington, has been appointed distributer for the Portage tire for the State of Washington and northern Idaho.

The Diamond Rubber Co., Akron, Ohio, has appointed Alfred Brown, 836 Main street, Worcester, Massachusetts, distributer of Diamond tires in that city.

The Hood Tire Co., Inc., Watertown, Massachusetts, has leased space at 4610 Euclid avenue, Cleveland, Ohio, including the top floor of approximately 3,200 square feet and two basements of about 6,400 square feet. Stores are operated by the company in Atlanta, Georgia; Chicago, Illinois; Cleveland, Ohio; Detroit, Michigan; Indianapolis, Indiana; Kansas City, Missouri; Los Angeles, California; New York City, and Washington, District of Columbia.

The Mansfield Tire & Rubber Co., Mansfield, Ohio, announces an increase in its business of 200 per cent for 1917 over that done in 1915 and 1916. It has already booked orders for the coming year totaling more than its business for the first six months of 1917.

The Dreadnaught Tire and Rubber Co. of Maryland, Baltimore, Maryland, has appointed Dunham, Carrigan & Hayden Co., San Francisco, California, exclusive Dreadnaught distributer for northern California.

The Racine Rubber Tire Co., American Circle Building, New York City, has increased its capital stock from $3,000 to $100,000. The officers and stockholders remain the same: Edgar Storms, Jr., president and treasurer; I. Carleton Fiester, vice-president; F. W. Page, secretary.

The Hawkeye Tire & Rubber Co., Des Moines, Iowa, has appointed the following distributers: the John H. Dunn Tire Co., Dallas, Texas, for Texas and surrounding territory; and the Lawton-Barnes Co., Omaha, Nebraska, for the State of Nebraska.

The Savage Tire Corp., San Diego, California, has reappointed as its distributer in Dubuque, Iowa, the Guaranteed Tire Service Co., which will cover the same territory as formerly, namely: northeastern Iowa, northwestern Illinois, and southwestern Wisconsin. The Savage corporation has leased space at 2411 Michigan avenue, Chicago, where it will maintain the Chicago district office, in charge of N. Stanley Peterson, as a clearing-house for the Middle West territory.

The United States Rubber Co., New York City, is now conducting its business on the Pacific Coast under the name of the United States Rubber Co., Pacific Coast Division, maintaining the same branch offices as formerly.

The Zee-Zee Rubber Co., Yardville, New Jersey, has issued its annual statement for 1917. The officers of the company are: Irvin Zimmerman, president; Robert W. Metz, comptroller, and W. G. Zimmerman, treasurer.

The old National Tire & Rubber Co., East Palestine, Ohio, has reduced its capital stock from $150,000 to $1,500, as a matter of routine in maintaining its entity while disposing of some old court matters. The new company, which is operating the plant under the name of The National Tire & Rubber Co., was organized in the spring of 1917 and took over the plant in March of that year. The officers of the company are: C. L. Merwin, president; S. L. Warner, vice-president and general manager; R. B. Taggart, treasurer, and E. N. Herrick, secretary.

The Tri-State Tire Co. has opened a store at 72 Sixth street, Portland, Oregon, where it is featuring Perfection asbestos protected tires exclusively.

The Auburn Tire & Rubber Co., Auburn, Nebraska, has been taken over from Dale Leerer by R. R. Bailey and will be operated as the Auburn Tire & Repair Co.

The new plant of the Long-Wear Rubber Co., Elyria, Ohio, manufacturer of automobile tires and tubes, is now in operation under the direction of B. W. Rote, factory manager. The main factory building is 237 by 70 feet, while the warehouse is 100 by 50 feet, both two stories high. The equipment is modern in every respect and has an initial capacity of 300 tires and 1,000 tubes daily. The Long-Wear is a non-skid tire with a double-thick tread.

The Toliver Tube and Tire Co., Denver, Colorado, has made the following appointments: Ernest R. Conrad, general manager; Thomas Selby, formerly of the Dry Climate Rubber Co., production manager; Sidney C. Stone, formerly of The International Rubber Co., Denver, Colorado, sales manager.

NEW FACTORY OF DOSS RUBBER & TUBE CO., INC.

The Doss Rubber & Tube Co., Inc., manufacturers of the Doss compression inner tube, Atlanta, Georgia, is building a factory near Fort McPherson, where it has purchased approximately two and a half acres of land and secured an option on an equal adjacent amount. The new factory is of brick and stone and will have 23,000 square feet of floor space. It is expected that it will be finished about June 1. Machinery has been purchased for its equipment and rubber for future delivery from May to October contracted for. The company will also make a high grade casing, in addition to its inner tube. The capital stock has been increased from $250,000 to $1,000,000, of which about one-quarter has already been sold for cash. N. C. Doss is president and G. J. Reuter superintendent.

NEW McGRAW APPOINTMENTS.

The McGraw Tire & Rubber Co., East Palestine, Ohio, has made the following appointments recently: R. E. Hayslett, assistant treasurer, assisted by H. B. Callahan; Robert Chaplow, production superintendent; A. C. Redman, formerly traffic manager, now industrial manager; R. G. Nelson, Pacific Coast district manager; W. E. Palmer promoted to manager of service department, succeeding J. E. O'Hara, resigned.

ARCHER RUBBER CO.'S FIRE.

Fire, believed to have started from a spark generated by static electricity, damaged the "churn" room of the Archer Rubber Co., Milford, Massachusetts, on January 30, to the extent of $3,000. The room, however, was fireproof, and the fire, although a stubborn one, was confined to the one department, being extinguished finally with the aid of chemical fire apparatus. Repairs were made immediately, the fire having occurred about seven o'clock in the morning, so that work in the department was resumed the following day.

OTHER FIRES EFFICIENTLY DEALT WITH.

The Perlman Rim Corporation, Jackson, Michigan, suffered a loss of $100,000 by fire on January 7, when one of its three plants was burned. The loss, however, was fully covered by insurance. The destroyed building was rapidly replaced and it is expected that machinery will be installed and put into operation by the middle of this month. In the meantime, by using a double shift of workers in the other two plants, the production was taken care of and even increased during the month of January.

The Driver-Harris Co., Harrison, New Jersey, reported in exaggerated newspaper accounts to have been temporarily put out of business by a fire which occurred in its plant during the night of January 31, states that, on the contrary, only two of its buildings were destroyed; one used for storage of raw materials and finished stock, and one which contained the chemical laboratory and testing room, one of the shipping rooms, one of the wire spooling departments, and the electrical cord and wire insulating departments. Temporary quarters have been provided and new machinery purchased to replace what was damaged. Business in the wire-drawing, cold-rolled sheet, and foundry departments is going on as usual and the shipping of goods from the others will be resumed as soon as possible.

CANADIAN NOTES.

THE United Rubber Manufacturing and Reclaiming Co., Limited, 495 Yonge street, Toronto, Ontario, is to erect a new factory in Whitby, Ontario. The town has offered the company a loan of $25,000 at six per cent for twenty years and has agreed to exempt it from all municipal taxes other than school and local improvement taxes, for a period of ten years from March 1; to supply it with water for domestic and manufacturing purposes, and with electric light, free of charge, for a period of five years; also to maintain a fixed assessment of $10,000 valuation of the company's plant for a period of ten years. Ground will be broken for construction work as soon as the weather permits. The company already has branches at Hamilton and Brantford. R. G. Wooten is general manager.

The Miller Rubber Co., Akron, Ohio, U. S. A., has established a western Canadian distributing branch at 154 Princess street, Winnipeg, Manitoba, which will operate under the name of the Miller Tire Co., Limited, in charge of H. G. Middleton, sales manager, and H. A. Middleton, local manager.

W. H. Miner, of The Miner Rubber Co., Limited, Granby, Quebec, has been elected a director of the Southern Canada Power Co., Limited.

J. D. ANDERSON, VICE-PRESIDENT.

AT the annual meeting of The Fisk Rubber Co., Chicopee Falls, Massachusetts, J. D. Anderson, factory manager, was elected a vice-president of that company by the directors.

J. D. ANDERSON.

Mr. Anderson has been a member of the Fisk organization since early in 1915, and is moreover, in point of service, one of the oldest rubber men in the country having previously been connected with the Hartford Rubber Works Co., a branch of the United States Tire Co., since 1895. He was secretary of that company first, later becoming its president. In the reorganization of the United States Tire Co., when the Hartford Rubber Works was consolidated, he was made general sales manager and in that capacity supervised the large organization and traveled extensively throughout the United States and Europe.

Mr. Anderson became associated with The Fisk Rubber Co. in May, 1915, as sales manager and in March, 1916, he became factory manager, which position he still retains.

THE PARKER TIRE & RUBBER CO. IN INDIANAPOLIS.

With the definite purpose of making a high-grade supersize cord tire, the Parker Tire & Rubber Co. has located in Indianapolis, Indiana, where it has erected a factory equipped to manufacture 500 tires per day. The officers of the company are: P. P. Parker, president and general manager (director); C. B. Gaunt, vice-president (director); H. C. Wharfield, secretary and treasurer (director); other directors: E. C. Merkle and Oscar Hasencamp. Mr. Gaunt and Mr. Merkle were formerly with The Knight Tire & Rubber Co., and Mr. Wharfield was formerly with The McNaull Tire Co. and The Be-Saw Tire & Rubber Co.

CARLISLE CORD TIRE DISTRIBUTERS.

Among the recently appointed distributers of the Carlisle cord tires are the following concerns: Pacific Coast—California, Tansey-Crowe Co., San Francisco; Kimball-Upson Co., Sacramento; George W. Eno Rubber Co., Los Angeles; San José Auto Supply Co., San José. Seattle, Washington, and Portland, Oregon—The Pacific Tire & Rubber Co. Middle West—Auto Tire Sales Co., Minneapolis, Minnesota; Curtis Rubber Co., Milwaukee, Wisconsin; James T. Short Co., Louisville, Kentucky; Sherwood-Crippen Co., Columbus, Ohio. East—Post and Lester, Connecticut; Dayton Tire Co., Boston, Massachusetts; Invincible Tire Co., Rhode Island; Del Chase Tire Co., Brooklyn, New York.

ST. PAUL RETAIL TIRE DEALERS ORGANIZE.

The retail tire dealers of St. Paul, Minnesota, have united forces under the name of the St. Paul Retail Tire Dealers' Association with: J. T. White, president; Arthur Randall, vice-president; J. C. Stegmeir, treasurer, and Milton Rosen, secretary.

ANNUAL REPORT OF THE FISK RUBBER CO.

ACCORDING to the fifth annual report of The Fisk Rubber Co., Chicopee Falls, Massachusetts, the profit and loss and surplus account for the year ended December 31, 1917, shows net profits of $3,578,484.57. This nearly doubles $1,836,829.86, the amount for the previous year. The present board and officers were reelected with the addition of J. D. Anderson, factory manager, who was elected vice-president.

The annual report of the company follows:

PROFIT AND LOSS AND SURPLUS ACCOUNT FOR YEAR ENDED DECEMBER 31, 1917.

Surplus, balance December 31, 1916		$1,875,442.37
Add:		
Net profits for year ended December 31, 1917, after deducting manufacturing costs, depreciation, and interest on borrowed money, but before providing for 1917 Federal income and excess profits taxes		3,578,484.57
Nominal value of 25,500 shares of Federal Rubber Co. common stock, par value $100 each, received for sundry services, etc., for which no specific charge was made		1.00
		$5,453,927.94
Deduct:		
Dividends paid:		
First preferred stock	$631,750.00	
Second preferred stock	341,100.00	
	$972,850.00	
Surplus appropriated for retirement of first preferred stock	405,328.81	
Premium paid on 3,750 shares first preferred stock retired January 18, 1917	34,819.71	
Provision for insurance liability on stock and equipment at branches assumed by the company	30,000.00	
Payment of taxes applicable to prior periods	5,536.45	
		1,448,534.97
Surplus, balance December 31, 1917		$4,005,392.97

ASSETS.

Capital Assets:	
Land, buildings, machinery, etc., at Chicopee Falls and equipment in branches all at depreciated values	$7,040,415.67
Manufacturing rights and leasehold property	106,030.99
Good will	8,000,000.00
Total	$15,146,446.66
Investments	284,622.63
Current Assets:	
Merchandise, raw, process and finished	17,737,637.58
Tires under mileage contracts	68,561.01
Receivables, less bad debt reserve	6,262,541.01
Collateral notes—employes stock subscription account	462,717.41
Cash	1,658,894.20
Total current assets	$26,190,351.21
Deferred charges	365,348.35
	$41,986,768.85

LIABILITIES.

Capital Stock:	
First preferred non-convertible	$4,025,000.00
First preferred convertible	5,000,000.00
Second preferred	4,500,000.00
Common	8,000,000.00
Total capital outstanding	$21,525,000.00
Current Liabilities:	
Loans payable	11,375,000.00
Accounts payable	3,311,683.01
Accrued wages	24,010.20
Dividends due, not paid	6,706.00
Total	$14,715,399.21
Reserves:	
Balance 1914 reappraisal	104,577.23
Insurance liability assumed	40,608.26
Guarantee	215,462.37
Total	$360,647.86
Surplus appropriated for retirement of first preferred stock	1,380,328.81
Surplus	4,005,392.97
	$41,986,768.85

BURLAP SUBSTITUTES.

The shortage of burlap has made prominent a material that is recommended as a practical substitute for wrapping and baling purposes. This is known as Saxolin and is made from superposed sheets of kraft paper softened by a special process and combined with a filling of asphalt. It is pliable, tough and water-resisting, qualities that will doubtless suggest to the rubber manufacturer its use for a variety of purposes—(The Cleveland-Akron Bag Co., Cleveland, Ohio.)

INTERESTING LETTERS FROM OUR READERS.

FROM A WELL-KNOWN TRAVELER.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR.—I recall the fact that I have been a regular reader of THE INDIA RUBBER WORLD ever since I first had the pleasure of foregathering with its genial editor some ten years ago in Mexico—"in the shade of the sheltering palm." The palm (*Oreodoxa regia*, and many another) indeed was there, but, truth to tell, it is only by poetical license that I thus speak of it, for the shade was not that of its feathery fronds but of a drenching tropical rain, out of which Mr. Pearson, as some new and strange amphibian, suddenly came upon us at J. C. Harvey's delightful, mud-walled, orchid-clad bungalow, set in that far-off Garden of Allah which his passionate love of plants and his botanical genius had created and filled with a multitude of diverse species and genera from the uttermost parts of the earth. . . . . But with this personal retrospect I am almost forgetting what I intended to say about THE INDIA RUBBER WORLD, namely, that its broad outlook, its encyclopedic information, its generous sympathies, and, last but not least, its cheery optimism, are characteristics which have always made a special appeal to the present writer, and served to render it, in his humble opinion, one of the most interesting as well as one of the most valuable of technical periodicals.

Yours faithfully,

J. L. HERMESSEN.

Pittsburgh, Pa.

ONE OF THE HARDSHIPS OF WAR.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR—The following appeals to me as distinctly funny, and being unselfish, I will share the joke with you.

A man having a large tire repair and vulcanizing establishment came into my office last week and asked me to recalender a batch of unvulcanized scrap repair stock he had collected. The stock was very dry and impossible-looking and I said as much.

"Yes," he replied, "I betcha them eastern factories are using that *sympathetic* rubber in their tread stocks now. Guess we don't get no more good stock till the war's over."

Los Angeles, California. DOUGLAS R. RADFORD.

FROM THE PRESIDENT OF THE MANILA MERCHANTS ASSOCIATION.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR.—Your Philippine story is very interesting and I have been loaning my copy of THE INDIA RUBBER WORLD to the "Manila Free Press," which is publishing the story in instalments as the magazine is received. The "Free Press" has a larger circulation than any other paper or journal in the Philippines and is in special favor among the younger element of the population, being developed by the public schools and university.

The leading editorial you had a few months ago was featured in the local papers as well as in the "Merchants' Association Review" and a magazine called "The Philippines." It is very pointed, and I hope the lesson will have some effect on the rubber interests of the country.

Things are jumping ahead here, largely on account of the demand the war has created for our products. This is especially true of hemp. The country required ships and is building them. The ships require rope, and as hemp makes the best rope there is, we are shipping out every available pound and getting more than double what it fetched a few years ago. It hardly seems right that these islands should gain their greatest prosperity as a result of the misfortune and calamity of nearly all of the rest of the world.

Very truly yours,

HAROLD M. PITT.

Manila, Philippine Islands.

NEW INCORPORATIONS.

Akron Maderite Tire & Rubber Co., The, February 7 (Delaware), $1,000,000. C. L. Rimlinger, M. M. Clancy, and F. A. Armstrong, all of Wilmington, Delaware. The office of the corporation within the State of Delaware is with the Corporation Trust Company of America, du Pont Building, Wilmington. To manufacture, trade and deal in rubber and rubber products of all kinds.

Akron Rubber Co., The, November 12 (California), $25,000. Dave F. Smith, 622 American Barror Building, Los Angeles. Principal place of business, Los Angeles. To deal in rubber.

American Automatic Tire Corp., January 30 (Delaware). $1,000,000. F. D. Buck, M. L. Horty and K. E. Longfield, all of Wilmington, Delaware. The office of the corporation within the State of Delaware is with the Delaware Charter Guarantee Trust Company, du Pont Building, Wilmington. To manufacture, trade and deal in rubber and rubber products of all kinds.

Anglo Tire and Supply Co., Inc., February 11 (New York), $20,000. Maurice I. Sanders, 245 West 51st street; Max D. Angel, 226 West 50th street, both in New York City, and Max Berg, 1414 46th street, Brooklyn, New York. Principal office, New York City. To manufacture and deal in tires, etc.

Associated Dealers Tire Corp., February 8 (New York), $60,000. Horman Howell, Orville, Mich., C. M. L. Ashby and Sam Stojanovich, both of Buffalo, New York. Principal office, Buffalo, New York. To manufacture tires.

Delion Sales Co., Inc., The, January 30 (New York), $10,000. William J. Wilson, Albert Olsen and Emil W. Lunsman, all of 1922 Broadway, New York City. Principal office, New York. To manufacture tires and automobiles.

Ironclad Tire Co., Inc., January 26 (New York), $10,000. Saverio A. Paul, 870 East 163rd street; David D. Deutsch and Jacob L. Diamond, both of 1789 Broadway; all of New York City.

Covington Tire & Rubber Co., January 16 (Kentucky), $5,000. William B. Whitacre, Cincinnati, Ohio; F. L. Richards and F. M. Richards, both of Covington, Kentucky. Principal office, Covington, Kentucky. Manufacture, purchase and sale of rubber and fabric material and to manufacture, retread and repair inner tubes and tire accessories, etc.

Doan Tire and Rubber Co., October 3 (Kansas), $20,000. A. B. Eisenhower, Kansas City, Missouri; Floyd I. Doan, Arthur F. Slaght, J. W. Blood, E. Marshall, all of Wichita, Kansas. Principal office, Wichita, Kansas. Deal in retail and wholesale automobile accessories.

Louisville Tire & Rubber Co., Inc., February 21 (New York), $1,000. Sydney Bernheim, Catherine A. Jacobson, both of 35 Nassau street, New York City, and Harry H. Jacobson, 373 Grand street, Brooklyn, New York. Principal office, New York City. To manufacture tires.

Mac Namara & Wadbrook, Inc., February 11 (New York), $18,000. Alfred B. Mac Namara, Elston E. Wadbrook, both of Englewood, New Jersey, and Lewis P. Mac Namara, 235 West 102d street, New York City. Principal office, 16 Exchange Place, New York City. To deal in crude rubber.

Manufacturers Products Co., Inc., February 2 (New York), $100,000. Hiram Burlingham, 6 East 49th street; H. C. Neuberger, 32 Edgecomb avenue, and Charles M. Chapman, 2 Rector street, all of New York City. The temporary office of the company is at 2 Rector street, Room 500, New York City. To manufacture rubber products.

Olympic Rubber & Metal Co., Inc., January 19 (New York), $40,000. Irving Kasanoff, 1772 Bergen street; Saul Jaffe, 2218 Mermaid avenue, and Isaac Gerinsky, 194 Lee avenue, all of Brooklyn, New York. Principal office, New York City. Old metals, waste, etc.

Overoad Tire Co., Inc., February 15 (New York), $10,000. Saverio A. Paul, 870 East 163rd street, Bronx; D. D. Deutsch, Jacob I. Diamond, both of 1789 Broadway, New York City. Principal office, New York. To deal in rubber goods.

Rainville Rubber Co., January 30 (Maine), $50,000. The officers are: Joseph A. Rainville, president; Joseph A. Rainville, treasurer; Dana S. Williams, clerk, all of Lewiston, Maine. To deal in all kinds of rubber goods.

Owen Tire & Rubber Co., The, September 27 (Ohio), $800,000. The directors are: W. C. Owen (president and general manager), Charles I. Blatz (secretary and treasurer), E. M. Blatz, (vice-president), W. O. Gleeson and J. H. Fester. Principal office, 1900 Euclid avenue, Cleveland, Ohio. To manufacture tires.

Parker Tire and Rubber Co., The, January 25 (Delaware), $750,000. F. D. Buck, M. L. Horty, K. E. Longfield, all of Wilmington, Delaware. The office of the corporation within the State of Delaware is with the Delaware Charter Guarantee & Trust Company, du Pont Building, Wilmington, Delaware. To manufacture all kinds of rubber goods.

Queen Rubber Co., Inc., January 19 (New York), $20,000. Melvin Farago, 5 West 116th street, New York City; S. A. Paul, 870 East 163rd street, Bronx, and D. D. Deutsch, 1789 Broadway, New York City. Principal office, New York. To deal in tires, tubes, etc.

Simplex Tire Co., Inc., February 21 (New York), $10,000. Arthur H. Biern, 108 West 111th street, and Charles H. Meyers, 1382 Broadway, both in New York City, and George Eiseman, 181 Powell street, Brooklyn, New York. Principal office, New York City. Tire business.

Union County Tire and Supply Co., February 8 (New Jersey), $75,000. Abraham G. Weinberg, Henry Weinberg, both of 31 Harrison avenue, New Jersey; Joseph Berkelhammer, 34 Lander street, Newburgh, New York. Principal office, 2 South Broad street, Elizabeth, New Jersey. To manufacture, import, buy, sell and deal in automobile cars, carriages, wagons, boats, and vehicles of every kind and description, and engines, motors, machinery, equipment, appliances, tools and supplies of all kinds used in connection with automobiles, cars, carriages, wagons, boats and vehicles, etc.

Union Tire and Rubber Co., December 13 (California), $250,000. C. E. Trezona, W. M. Carne, C. Stevens, L. A. Von Tagen, L. A. Hilborn, C. Meyer, P. F. Unger, all of San Francisco, California. Principal office, San Francisco. Dealers in auto tires and rubber goods.

Worth-More Tire Co., Inc., January 19 (New York), $20,000. Frederick Eisele, New Dorp, Staten Island, New York; S. A. Paul, 870 East 163rd street, and D. D. Deutsch, 1789 Broadway, both of New York City. Principal office, New York City. To deal in tires, tubes, etc.

CHEMISTS CLUB FOR FRANCE.

The Cercle de la Chimie is a chemists' club which has been formed in France, with comfortable headquarters at 54 rue de Turbigo, Paris. Scientific meetings will be held and extensive literature provided, while the proceedings of the club and the activities of chemists in general will be recorded in the "Revue des Produits Chimiques," which is to be the club's official organ.

INSULATION MATERIAL FROM WASTE PRODUCTS.

Among the new insulating materials which are being placed on the market is Dorrite, manufactured by the Dorrite Insulation Co., Jersey City, New Jersey. The material is the result of the study and development of Harry A. Dorr. It is composed of chemically treated pulverized waste material, which can be molded, stamped or pressed into all special or commercial shapes and sizes. The material is said to have undergone most conclusive tests without developing any leakage or breakdown.

THE RUBBER TRADE IN AKRON.

By Our Regular Correspondent.

NET earnings of $831,271 for 1917 were reported at the annual stockholders' meeting of the Miller Rubber Co., held February 14. A contemplated stock dividend was decided to be inadvisable at this time and will not be declared.

Sales for the year were $11,357,500; operating profit, $1,131,540. Quick assets are $6,885,050; permanent assets, $4,179,091; total current liabilities, $3,691,584; preferred stock, $3,000,000; common stock, $3,583,500; surplus and reserve fund $788,752.

The directors and officers were reelected. During 1917 extensions were completed to accommodate from 6,000 to 7,000 employes and permit annual business amounting to $30,000,000. During the first half of the present year it will start producing and marketing a solid tire, besides its cord tire.

The report of the company a year ago covered the fifteen months ended December 31, 1916. Sales for that period were $7,583,605 and net earnings, before depreciation and expenses of increasing the capitalization, were $952,952.

* * *

A large force of men is installing the new calenders and mills of the Mason Tire & Rubber Co., Kent, Ohio, which, when erected and in operation, will give the plant a daily production of 1,500 tires. The company intends to manufacture truck tires in the future. Sales for the first quarter of the 1918 fiscal year (commencing November 1, 1917) show an increase of 700 per cent over the same quarter of 1917. January sales were the largest in the history of the company for any one month.

Company 5, 308th Motor Supply Train, Quartermaster's Department, of the United States Army, was held up at Kent recently by a severe snowstorm while it was on its way from Detroit to the coast with a large number of Liberty trucks for use by the United States Army overseas. The boys were entertained during their stay in Kent by the Mason Club, which is the social center of the Mason Tire & Rubber Co.

* * *

Above: "Behind the scenes" in the Goodrich Window Display Department, where skilled hands and brains create lifelike effects.

Below: R. F. Stratton, manager of window displays, with his assistant, R. D. Graffis, in the office of the department.

Through the recently completed subway system which connects all the Goodrich factory buildings, rubber-tired electric tractor trains are enabled to transport materials underground from one building to another throughout the more than one hundred acres occupied by the various units of this large rubber factory.

The main line of this traffic tunnel is about 1,100 feet long, and its laterals, or communicating tunnels, measure an additional 600 feet. The "tube" is of reinforced concrete and brick construction, rectangular in shape, 14 feet wide. Each factory building is a receiving and shipping depot on the subway line.

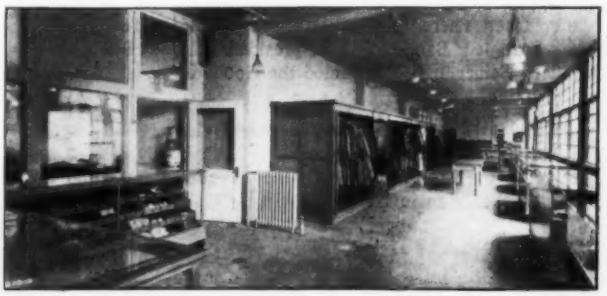
With all the Goodrich factory buildings equipped with big freight elevators the subway makes it possible to transport materials from any part of one building to any section of another building without exposing them to outside temperatures.

Cars employed in the subway system are of a special design, so constructed that they may be handled by men in the workrooms as well as by the tractor in the tunnels. The tractors, too, can run on any of the factory floors if required. The subway system is wide enough to permit two trains to pass with a safe walking distance for pedestrians. Curves throughout the system are broadened to give the trains plenty of room at all turns.

* * *

Net earnings of The B. F. Goodrich Co. during 1917 were the greatest in the history of that concern, according to the statement issued after the annual meeting. They reached $12,675,000, which was $3,000,000 more than the net earnings of 1916. No statement was issued on the gross business. The figures do not include income and excess profits tax, which may approximate $2,250,000, leaving the net profit $10,245,000. In 1915, the net reached $12,200,000, but there was none of the taxation features to meet that are encountered today.

The directors voted, subject to the approval of the stockholders at their annual meeting March 13, to retire 9,000 shares of preferred stock prior to July 1, 1918. This makes a total retirement of 45,000 shares covering the charter provision for retirement of preferred stock up to July 1, 1918.



INTERIOR OF GOODRICH SERVICE STORE.

The B. F. Goodrich Co. recently opened a service store for its employes, through which to sell such products as were formerly sold through factory departments. Prices are based upon production cost plus sufficient margin to cover the actual expense of handling and operating the store, but without profit.

* * *

A $15,000 contribution of advertising space to the United States Government has been made by The Firestone Tire & Rubber Co. With this gift the firm becomes the first in Akron and one of the first in the country to enlist in the campaign under the direction of the newly created division of advertising of the Committee on Public Information to use the magazines and newspapers of the country in the forthcoming drives for Liberty Loan bonds.

Edward S. Babcox, advertising manager of the Firestone company, and vice-president of the Association of National Advertisers, is chairman of a subcommittee of the A. N. A. which will conduct its own personal drive among the 280 members of the organization to secure advertising space from every member.

* * *

Unusual interest and importance is attached to the announcement by The Goodyear Tire & Rubber Co., Akron, Ohio, offering $15,000,000 of its recently authorized $25,000,000 issue of 8 per cent cumulative second preferred stock for immediate sale

to present stockholders of the company, its factory and field organization, its dealers, and the users of its products, at par value, $100 a share. In explaining the new issue, President F. A. Seiberling says:

The company did a gross business, in the fiscal year just finished, of $111,000,000, and has the capacity and equipment to produce, at present prices, a gross business of $200,000,000. We were of the opinion that, due to war conditions, the business might be retarded during 1918, but our sales in November and December of 1917 were more than 50 per cent greater than for the same period of 1916, indicating that the company's business for 1918 may exceed $150,000,000.

While less than 1 per cent of our 1917 output was war business, the Government now requests us to take on war business in considerable volume, which necessitates a greatly increased supply of raw materials. Our supply of crude rubber is secured mainly from Singapore, and as ocean shipping is irregular and uncertain at present we are compelled to carry larger stocks and make advance purchases far beyond normal requirements.

The sale of $15,000,000 second preferred stock will enable us to take care of our ever-increasing business with larger profits for the company and greater security to the preferred stockholders, as well as larger earnings for the common stockholders.

In January the company increased its capital stock $50,000,000, half preferred and half common, giving it an authorized capitalization of $100,000,000.

* * *

The Camp Sheridan expedition of the Goodyear Friars, covering a trip of more than 1,700 miles, marked the climax of achievement of that Akron minstrel organization. It was the longest known journey that any troupe has made to any of our army training camps for the purpose of entertaining the soldiers. A program was presented that will linger long in the memories of the soldiers, many of whom were formerly Goodyearites. Six thousand persons witnessed the performance and participated in a rousing patriotic finale that shook the great coliseum as all sang "Over There," "God Bless Our Splendid Men," and "The Star-Spangled Banner." Vice-president C. W. Seiberling and Willard Seiberling accompanied the Goodyear boys.

* * *

H. E. Haws, eastern sales manager of cycle tires and accessories of The Firestone Tire & Rubber Co., was recently reelected a director of the Motorcycle and Allied Trades Association at the annual convention in New York City.

* * *

The work of the Boy Scouts in Akron received a decided impetus when the Goodyear Tire & Rubber Co. determined upon the employment of a scoutmaster to give his entire time to bringing scouting before the sons of the employes of the plant. D. M. Olds of Medina, a Philippine war veteran, was employed, and on February 10 took charge of Troop 16. The Goodyear company has thus become the pioneer in this work in the United States.

* * *

Officials, branch managers, salesmen and factory department heads of the Swinehart Tire & Rubber Co. enjoyed a banquet at Young's hotel as a closing event of the annual sales conference held February 6 to 8 inclusive. President T. F. Walsh was the speaker of the evening, telling of the relation of industry to the war and the part it must play.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

SOME of the rubber concerns have been hit rather hard by the peculiar combination of heavy demand from the trade, priority claims of government work, enforced holidays and lack of fuel. One manufacturer stated he would keep running if to do so meant running only a single machine, and he has kept his vow. Meanwhile the handicap common to all trades has evidently hit the rubber trade as well—the scarcity of workers. The Sunday and daily papers contain display advertising for green hands to learn the business, and for workers of several kinds and grades, from lumpers to tire and boot makers, and for clerks, machinists and stenographers.

The footwear trade has been especially unfortunate, with orders enough to keep the factories busy to full capacity the entire season, yet with too few workmen to keep up with the present actual demand, because of the severity of the winter, which, it is hoped, will end a couple of months earlier than it did last year.

* * *

E. H. Clapp, of the C. H. Clapp Rubber Co., is now president of the Cotton & Woolen Manufacturers Mutual Insurance Co. of New England, which is closely associated with the Rubber Manufacturers Mutual Insurance Co. and the Industrial Insurance Co. of this city. At the annual meeting of the Rubber Manufacturers Mutual Insurance Co., held late in January last, the treasurer's report showed a most prosperous condition of the company, and disclosed the fact that of the premium deposits paid into the company 90 per cent were returned January 1, 1917. At the meeting the following directors were elected: Arthur H. Lowe, Fitchburg, Massachusetts; George B. Hodgman, New York City; Marcus Beebe, Malden, Massachusetts; C. C. Converse, Boston, Massachusetts; E. H. Clapp, Boston, Massachusetts; F. W. Pitcher, Easthampton, Massachusetts; H. E. Converse, Marion, Massachusetts; C. T. Plunkett, Adams, Massachusetts; J. P. Stevens, Newburyport, Massachusetts; C. A. Stone, Boston, Massachusetts; B. F. Peach, Lynn, Massachusetts; E. Frank Lewis, Lawrence, Massachusetts; Lester Leland, Boston, Massachusetts, and Benjamin Taft, Ayer, Massachusetts.

At a meeting of the directors the following officers were chosen: Arthur H. Lowe, president; George B. Hodgman, vice-president; Benjamin Taft, secretary and treasurer, and W. E. Brophy, assistant secretary and treasurer.

* * *

The Cambridge Rubber Co., Cambridge, Massachusetts, has just completed two new buildings and is erecting a third. One of these is 70 by 80 feet, to be used for the spreading department; another is a five-story, 45 by 100 feet building for the clothing department, and the one being built is a two-story brick and steel building, 40 by 100 feet, which will be used in connection with the manufacture of automobile top material. The Government will also use a portion of this building for one of its branch inspection depots. A new line of mills has been installed and the former mill room will be used as a press room for the sole and heel department. In addition to the regular line of mackintosh and automobile top proofing, the company will manufacture a full line of calendered surface clothing and soles and heels. The officers are: Warren MacPherson, president and general manager; George H. Rockwell, vice-president and assistant manager; I. Frank Burnham, superintendent.

* * *

Frank W. Whitcher, of the Boston shoe findings company bearing his name, and of the Mayflower Rubber Works Co., South Braintree, is president of the Massachusetts State Board of Trade, and is a champion of the fixed price movement for advertised articles. He gave a very telling address at the convention of the New England Hardware Dealers' Association, held in Boston last month, in which he claimed that excessive competition was disrupting business, and that the present antitrust laws fail to meet requirements in many instances, and should be repealed or so altered that they would help business and permit cooperation under reasonable government restrictions. The address was most favorably considered by his hearers.

* * *

W. B. Laighton, manager of the export department of the Hood Rubber Co., is taking an extended trip for business and observation. He was recently in Lima, Peru.

The salesmen connected with the clothing department of the United States Rubber Co. in sections east of Chicago, convened at Boston last month to inspect samples and plan the coming season's campaign.

* * *

Edgar B. Davis, vice-president of the United States Rubber Co., New York City, who has made several trips to the Far East plantations of that company, delighted a large audience at Brockton, this state, a few weeks ago, with a talk on the cultivation of rubber. Mr. Davis is a native Brocktonian, and previous to his joining the rubber company was connected with the shoe manufacturing firm of Chas. A. Eaton & Co., which concern is now manufacturing large numbers of army shoes. One point which impressed his hearers was the possibility of rubber being used as a substitute for upper leather in footwear.

* * *

Clarence E. Bosworth, who has just returned from a 40,000-mile tour of investigation in the Far East as a commercial agent of the United States Government, in an address before the Boston Boot and Shoe Club, stated that the Americans connected with the great rubber plantations there have become a potent factor in the introduction of American goods. They have demanded that the storekeepers there carry goods that they were used to having at home, and the demand broadens out continually as American goods are exhibited for sale by the local merchants. He expressed great surprise at the magnitude of the plantation rubber industry there, and predicted a continually increasing demand for American-made goods where this industry prevails. Even in the Dutch colonies the same is true, the settlers, and also the natives, delighting to clothe themselves in American garments and footwear, and buying American sewing machines and musical phonographic machines.

* * *

A man needs a polyglot dictionary nowadays to make himself understood in rubber factories. The "Fisk Bulletin," published by the social and athletic association composed of workers at The Fisk Rubber Co., Chicopee Falls, Massachusetts, in a recent issue printed a notice in English, Russian, Polish, Italian, French and Greek, informing its readers that those whose incomes amounted to more than $1,000 a year must make a report, and that a government representative would be at the factory employment department several days the first part of last month to explain any parts of the law not clear to the workers.

This "Fisk Bulletin" is a bright, newsy, well-illustrated paper, which must be of special interest to every employe at the big Chicopee factory.

* * *

Charles A. Coe, eastern selling agent of the United States Rubber Co., was elected a member of the executive committee of the Boston Boot and Shoe Club at its annual meeting last month.

* * *

R. E. Conder of the Boston Woven Hose & Rubber Co., Cambridge, attended the convention of home canners, held under the auspices of the United States Department of Agriculture at Washington last month, and at one session gave a lecture illustrated with motion pictures of the rubber industry, from tapping the tree in the forest or plantation to the manufacture of the jar rings for which the company is famous.

* * *

Branch office managers and factory department heads of the Hood Tire Company, during their convention in Boston, attended a dinner at Hotel Thorndike, February 14. C. A. Wilkinson, general office manager, presided, and the speakers included W. W. Duncan, president of the company; J. A. Smith, director of the Hood Rubber Co., and George Watts, manager of the New York branch. Managers were present from Rochester, Chicago, Buffalo, Cleveland, Kansas City, Indianapolis, Los Angeles, New York, Washington, Atlanta, New Orleans, Birmingham and Dallas, Texas.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

WHEN the industrial history of Rhode Island for the year 1918 shall be written, the month of February will occupy a unique and unprecedented position, peculiarly its own, as having been a month of only sixteen working days. And this, notwithstanding the fact that practically every concern had plenty of work on its books to keep its plant running on a full time schedule during the entire month. A short month at best with only 28 calendar days, there was a total deduction of twelve closed days, including four Sundays, four "heatless" Mondays, two holidays—the birthdays of Lincoln and Washington—together with Saturday afternoons. In consequence, the month has been an especially trying one for both employers and employes.

The coal situation and the "heatless" Monday closing at the direction of the Federal and State Fuel Administrators in accordance with the national movement to conserve coal, hit hard at the Rhode Island rubber working plants as well as those making accessories therefor. Plants working on government contracts were given preference through obtaining special permission from the administration to receive coal supplies and to continue operations. The coal shortage was greatly intensified because of the ice embargo which prevented shipments arriving by water and resulted in many of the local plants closing down entirely for several days from lack of fuel. It has been a combination of conditions and circumstances never experienced here before.

With the thermometers registering 15 degrees below zero, the factory of the National India Rubber Co. at Bristol, employing nearly 5,000 hands, was closed down on February 6, owing to the extreme cold, and did not resume operations for nearly ten days. The department rooms were much colder than usual, owing partly to the factory being previously closed under the fuel conservation requirements.

The Narragansett Rubber Co. at Bristol, the O'Bannon Co. at West Barrington, and the Woonsocket Rubber Co. were also forced to close their plants because of the extreme cold. The Narragansett Co.'s plant was closed from February 1 to 13.

* * *

Officers and directors were elected at the first annual meeting of the stockholders of the Narragansett Cotton Mills, Inc., manufacturer of tire fabrics, held in the office of the corporation, 707 Grosvenor building, Providence. Andrew E. Johnson, president; R. H. Woffenden, vice-president; Claus Hanson, treasurer, and Adolf E. Johnson, secretary. Directors: Henry C. Johnson, Pawtucket; R. H. Woffenden, Apponaug; Andrew E. Johnson, Pawtucket, and Claus Hanson and Adolf E. Johnson, of Providence.

Progress in constructing the new plant at Apponaug was reported by the treasurer, although the unusually severe weather conditions caused some delay. The mill is now roofed in and it is expected that conditions will permit starting work in the near future.

* * *

The "Industrial Relations Department," recently established at the factory of the National India Rubber Co., Bristol, was "christened" on the evening of February 8, at a dinner given by the vice-president, George Schlosser, at the DeWolf Inn, to the foremen and forewomen of the factory, numbering about 130. There were also represented in the gathering, heads of various departments at the National, and guests from other factories, including a delegation from Woonsocket. The dining room was

neatly decorated with American and allied flags and the large service flag of the National plant, containing more than 100 stars, occupied a prominent place. Over the speakers' table was suspended a large American eagle.

The menu, which was in accordance with the Hoover idea, was served by young women employes of the company who live at the Inn. After cigars had been lighted, Vice-President Schlosser called the assemblage to order and read the following: "A. T. Hopkins and Burr A. Robinson, of New Haven, Connecticut, both of whom are interested in our industrial relations department are about to visit our plant. It is important that you know these gentlemen, also that you get acquainted with H. W. Brown and E. E. Bunn who will have charge of this work in connection with our new Employment Department at Bristol."

Mr. Schlosser, continuing, said in part:

Messrs. Hopkins and Robinson are going to talk to us on industrial relations, labor bureaus, etc., and the many things involved that will help to bring us in closer touch with that most important factor in our business—the human element. Upon it we are entirely dependent, without it, we cannot exist. Let us all, therefore, to-night, regardless of our official titles, regardless of our specific jobs, be foremen and forewomen, and learn better to appreciate and understand our duties in this important work.

The National India Rubber Co. has grown the last few years to be one of the largest and principal canvas footwear mills of the United States Rubber Co. And yet the expansion goes on. I recall that but a year or so ago we were boasting of our 44,000 pairs of Keds and 1,000,000 feet of insulated wire per day, with 3,500 employes and a weekly payroll of $50,000. To-day, friends, we are producing daily 53,000 pairs of Keds, more than a million feet of wire and employing 4,300 persons with a weekly payroll of $62,000. Think of it, over $3,000,000 per year in wages. With such a vast army of coworkers, 4,300, the old methods which used to bring about close understandings of mutual benefit to both the employer and employe, have long become obsolete.

We have already accomplished a great many things which we believe lead to specific attention of the human element phase. Take our hospital or rest room; the operating room for preliminary operations with a professional trained nurse in touch with the best physicians; our part in the Colt Memorial ambulance, with its ever-ready equipment and post haste drives to Providence and Fall River hospitals; our part in the housing and operating of one of the most modern and best equipped combination chemical fire auto trucks; an ever-increasing fleet of transportation auto trucks; ice-cooling sanitary water-drinking bubblers in all departments; electric clocks regulated and running to standard time received daily from Washington; the addition of Monitor roofs in departments where possible for additional fresh air advantages, involving the regular and accurate readings of hygrometers showing temperature and relative humidity; safety guards and devices of all descriptions. Our sanitary and spacious toilet equipment, male and female, we cannot overlook. Our pension plan adopted April 2, 1917, with its many liberal and broad provisions, now carries, it might be of interest to know, some 30 names, for no longer does the coworker who gives us his services from early youth to middle or old age find himself on the street at the mercy of the world.

* * *

W. D. Crawford has accepted a position with the Jenckes Spinning Co., at Pawtucket, taking charge of the tire fabric weaving department.

* * *

James C. Olsen, of Rehoboth, Massachusetts, is the owner of the Olsen Tire Co., 113 Fountain street, Providence, according to his statement filed at the office of the Providence City Clerk.

* * *

The Westerly Textile Co., manufacturer of tire fabrics, has recently been installing additional machinery at its plant at Westerly, so that it now has 64 narrow and 118 broad looms in operation. In order to make the necessary purchases for this expansion the capital stock has been increased to $300,000.

The Revere Rubber Co. has been making extensive alterations and renovations in its brick building on Eagle street, Providence, and has been calling for young women, with or without experience, for service in the various departments.

* * *

The annual financial report of the American Wringer Co., of Woonsocket, presented at the annual meeting of the corporation held in this city early the past month, shows gross earnings for the past year of $263,936.32, expenses of $118,412.94, and a net balance of $145,523.38. This compares with results for the previous year of $262,085.22 gross, $114,503.07 expended and a balance of $147,582.15. In each year dividend disbursements amounted to $113,500, but there was charged off to depreciation for the year just closed the sum of $17,023.38 against only $9,082.15 for the preceding year.

* * *

Dr. Walter Parke Bradley, research chemist of the Revere Rubber Co., gave an address February 22 on "The Preparation and Uses of Liquid Air," including experiments with liquid air. The address was given under the auspices of the Providence Engineering Society, chemical section.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

WITH the lifting of the national fuel order, and the increase in the arrival of coal supplies, allowing manufacturing plants to operate six days a week, the rubber industry in Trenton is commencing to reach normal conditions again. All of the plants are now working full time and attaining capacity production of hose, belting, packing, etc., while the auto tire plants are steadily increasing their output and will continue to increase it with the coming of spring.

Following the order which forced every plant to close down, with the exception of the Luzerne Rubber Co. which was working on hard rubber disks for airplane engines, orders were greatly interfered with and a shrinkage in the pay of thousands of employes was caused. However, they are now working on full time and many departments are running overtime. This was decided upon by manufacturers as a necessary measure to insure the filling of contracts.

After the Government's order was rescinded, the Public Service Corporation of New Jersey, which supplies electric current for practically all of the plants in the State, announced that a large supply of coal had been received and that the company would be able to supply a full voltage of current. This announcement was welcomed by the rubber manufacturers, especially those whose plants are located in the northern part of the State where a complete shut-down was in effect.

The problem now receiving the attention of the trade in Trenton is the embargo placed on freight. While orders are being filled quickly, the companies are having difficulty in transporting them to the consumers. When it was found that freight could not be shipped on time in the usual manner, manufacturers sent consignments by express, but this plan of shipment is, of course, more expensive and cuts into the profits. The auto freight truck is rapidly coming into prominence and may prove the solution of the transportation problem, particularly for short distances. Practically all of the companies here have secured huge trucks for this purpose.

* * *

The office staff of the Ajax Rubber Co., Inc., at the Trenton plant, tendered a banquet on the night of February 21 at the Hotel Sterling to three fellow employes: Clifford Fuhrmann, Edward A. Feenane and George B. Van Dyke, who have been found physically fit for military service and who left for Camp Dix, Wrightstown, New Jersey, on February 27.

A. F. Robertshaw acted as toastmaster and addresses were delivered by Louis P. Destribats, C. S. Redfield, E. A. Reid and G. A. Sigel, of New York City. Following the banquet, dancing

was enjoyed. The committee in charge included M. J. Ryan and L. W. Fitzgeorge. Among those present were: L. P. Destribats, A. F. Robertshaw, C. S. Redfield, C. A. Reid, E. D. Havens, A. MacCallum, R. W. Fitzgeorge, J. Platt, L. W. Fitzgeorge, M. J. Ryan, J. Pagliaro, C. Fuhrmann, G. B. Van Dyke, E. A. Feenane, E. Dizanau, G. A. Sigel.

* * *

In the list of 250 prominent manufacturers and business men who recently petitioned the New Jersey State Legislature to ratify the prohibition amendment to the United States Constitution, appeared several connected with the rubber trade in different parts of the State. They were: W. R. Braender, treasurer of the Braender Rubber & Tire Co., Rutherford; C. J. E. Mastin, president of La Favorite Rubber Manufacturing Co., Paterson; George H. Neidlinger, president of the Peerless Tire Co., Bloomfield; Caleb S. Green, treasurer of the Dural Rubber Corp., Flemington; H. Weida, vice-president and manager of the India Rubber Co., New Brunswick, and Albert L. Pashek, of Newark. The committee earnestly urged the law-making body to hasten the passage of the ratifying measure and make the nation dry.

* * *

The rubber industry in Trenton leads all others in the amount of contributions made to the Knights of Columbus War Recreation Fund recently conducted here, and it was chiefly because of the large sum donated by manufacturers and employes that the goal of $20,000 was reached within a week. General C. Edward Murray, treasurer of the Crescent Insulated Wire & Cable Co., was one of the two team captains, while W. J. B. Stokes, vice-president and treasurer of the Joseph Stokes Rubber Co., and an officer of the Thermoid and Home Rubber companies; Alfred Whitehead, secretary of the Whitehead Brothers' Rubber Co., and Louis P. Destribats, manager of the Ajax Rubber Co., Inc., formed a committee to solicit contributions from the rubber manufacturers. Clifford H. Oakley, president of the Essex Rubber Co., Inc., was assistant to General Murray.

In the list of contributions from those connected with the trade were: $1,000, Crescent Insulated Wire & Cable Co. and Empire Tire and Rubber Co.; $500, George R. Cook, president, Acme Rubber Manufacturing Co. and Hamilton Rubber Co.; $250, Joseph Stokes Rubber Co.; $250, Thermoid Rubber Co.; $150, Home Rubber Co.; $100 each from Alfred Whitehead, Louis P. Destribats, United & Globe Rubber Manufacturing Cos., Delion Tire & Rubber Co., Delaski & Thropp, John E. Thropp Sons' Co., and a number of individual contributions for $100.

THE RUBBER TRADE IN NAUGATUCK, CONN.

RAPID progress is being made in building the large addition to the office of the Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Connecticut, which is to serve as a central office for the Goodyear's Metallic Rubber Shoe Co. and the Goodyear's India Rubber Glove Manufacturing Co. when completed. The addition will approximately double the present office capacity and, together with alterations on the present office, will make an extremely attractive, up-to-date building.

* * *

There are 50 stars on the service flag of the Goodyear's India Rubber Glove Manufacturing Co., representing their men who are serving in the United States Army or Navy.

* * *

It is, in great measure, the result of the efforts of the rubber companies of the borough in the recent Red Cross campaign that Naugatuck has been awarded second place in the contest for the prize offered to the town in Connecticut having the highest standing. This prize is a gift of $500 a month for the duration of the war to the chapter making the best showing.

The quota of members asked of Naugatuck was 3,500, and a total of 9,600, or over 274 per cent, was reached. Over 56 per cent of these were secured through the factories of the town. When the campaign closed, the Goodyear's India Rubber Glove Manufacturing Co. was represented by 97.74 per cent of their employes; the Goodyear's Metallic Rubber Shoe Co. by 97.57 per cent; the Naugatuck Chemical Co. by 82.38 per cent, and the Rubber Regenerating Co. by 72.78 per cent.

RUBBER TRADE INQUIRIES.

THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.

(371.) An inquiry has been received as to where cadmium trisulphate may be obtained.

(372.) A manufacturer of cork flour desires to sell this product to the rubber trade.

(373.) A correspondent requests the name of a book or information concerning the repair of electric storage battery rubber jars, what equipment is needed, and where it may be bought; also for information as to repairing rubber boots and shoe soling and heeling.

(374.) A patriotic rubber expert inquires whether the Government offers any opening for a practical tiremaker, repairer, or inspector of rubber supplies or shipments.

(375.) A reader asks for information regarding the reclaiming of rubber tires and rubber scrap for the manufacture of half-sole material and rubber heels.

(376.) A manufacturer desires the names of engineering firms that make a specialty of designing and drawing up specifications for tire factories.

(377.) A subscriber requests information about "Liquidambar," including its source and where it can be purchased.

(378.) Inquiry is made for the names of concerns making or handling tire mold machinery, equipment and supplies.

(379.) A correspondent is in the market for 40-inch wooden shells fitted with a hole for one-inch square shaft, and inquires the names of concerns that make a specialty of such stock shells for spreader work.

(380.) A subscriber asks for the name of the manufacturer of a hammering machine for uniting the edges of rubber articles.

(381.) A manufacturer desires to know the best method for polishing small hard rubber articles after removing from the vulcanizer and the best type of machine and materials necessary

(382.) A correspondent wishes information concerning the best methods for the preparation and use of gutta percha compounds.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Reserved addresses may be obtained from the Bureau of Foreign and Domestic Commerce, its district or cooperative offices. Request for each opportunity should be on a separate sheet, and state opportunity number.

(26,343.) A business man in Australia wishes to purchase carbon blacks, lithopone, white and red lead, zinc oxides, glues, turpentine and carnauba wax.

(26,378.) A man in Canada, who represents wholesale merchants and manufacturers in the Netherlands, is in the market for rubber tires for bicycles, motorcycles, and automobiles, rubber, balata, cotton, and leather beltings.

(26,401.) A man in China wishes to be put in communication with manufacturers of tires.

(26,420.) An agency is desired by a man in Canada for the sale of steam-pipe covering, engine packing, and brake lining.

(26,443.) A man in Norway desires an agency for the sale of insulated electric cables.

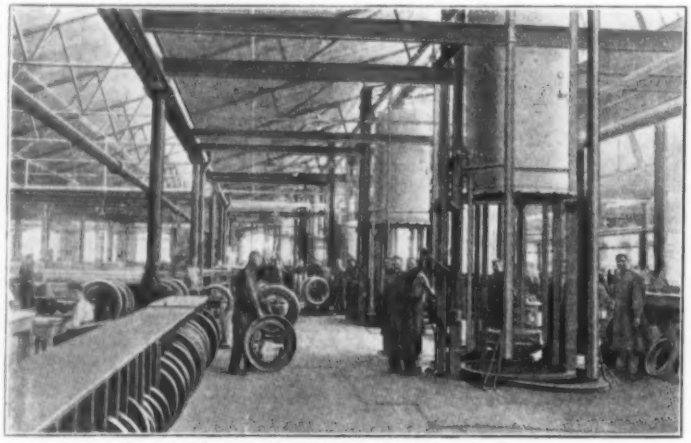
(26,448.) A man in France wishes to secure an agency for the sale of rubber soles.

The Revolution and Russian Rubber Manufacturers.

By Our Regular Correspondent.

TO thinking persons whose judgment was not obscured by incorrigible optimism and idealism, the Russian Revolution did not appear an unmixed blessing. They could not help remembering the maxim that history repeats itself, and the accounts of the excesses of the great French Revolution constantly passed through their minds. Subsequent events have more than justified their misgivings.

At the best of times, Russia seethed with intrigue and sedition; conspiracy fought conspiracy; while the great voiceless mass, in whom the grossest superstitions were most carefully nurtured by unscrupulous and interested persons, staggered along in forced ignorance under the burden of tyranny, acutely aware of a far-off Siberia whither their champions were consigned, and dully wondering why things were so.



PRESS VULCANIZER ROOM IN A RUSSIAN TIRE FACTORY.

And such a Russia, counting more than 170,000,000 souls, has been delivered unto her own uncontrolled self at the most critical period of the tensest struggle the world has ever witnessed. Therefore, the rebellions and counter-rebellions that have been the order of the day since the Czar of all the Russias was driven from his throne, are not surprising. And it might have been foreseen that while the newly unshackled serfs of oppression, drunk with license—which they call liberty—squabbled among themselves for supremacy and recognition with all the intolerance of order that characterizes people in their position, chaos would rule supreme.

There is no longer any systematized means of transportation in the country, and business is practically at a standstill. To quote from a recent speech of the chairman of a British company operating in Russia, the only industry that is at present prospering is that of turning out paper money.

Needless to say, the rubber trade, which had occupied the front rank in Russian enterprise, is suffering together with the other industries. In 1916, Russia ranked third among the nations of the world in the consumption of crude rubber, but she has now dropped to fourth place, her consumption for 1917 having decreased from about 20,000 to about 7,000 tons as a result of chaotic industrial conditions following the revolution.

Reports dating from the latter part of 1916 and the early months of 1917 showed the large firms, "Prowodnik" and "Trëugolnik," in a prosperous condition, actively engaged in carrying out government orders, increasing their capital, and generally not at all adversely affected by the war. But since then, the "Prowodnik" has been forced to leave Riga, where it had been established since its foundation in 1889, and removed to Moscow. Circumstances would indicate that this move will prove to be comparable to the proverbial jump out of the frying-pan into the fire. Annihilation by Germans or by mad mobs leaves little to choose from; for, as history has repeatedly shown, a revolutionary mass first turns against the government, then against the wealthy. Needless to say, the present position of great firms like these is, therefore, precarious in the extreme.

The other pioneer rubber concern, the "Trëugolnik," has experienced serious labor troubles, and is doubtless reflecting that the lot of an important enterprise is not very comfortable in times when the unchecked sovereign people control the régime.

Under these conditions, the shareholders, Russian and foreign, will have to accustom themselves to the thought of receiving very small dividends, if any at all. As is well known to our readers, French capital is largely interested in the "Prowodnik."

Hitherto, the career of the latter company has been singularly prosperous. Since 1890, when within a year of its foundation the "Prowodnik" factory at Riga was almost entirely devastated by fire, reports have shown little else but increasing welfare. From 1888, when it was chartered, up to the end of 1916, the original capital increased from 700,000 to 50,000,000 rubles. At first, the less important rubber articles and linoleum were manufactured; gradually, asbestos goods, tires and rubber footwear were included, the last two items finally claiming most attention. The first automobile tire in Russia was made here and this article in time attained such perfection that Prowodnik tires, although more expensive, successfully competed in England against British tires. The production of rubber footwear also increased remarkably, so that in 1914 the daily output was approximately 100,000 pairs. The branch stores throughout Russia numbered 300; Prowodnik representatives were found in every country of Europe, and even in Asiatic Russia, Persia, China and Australia. In short, the activities of this company were such that whereas Riga formerly imported from England and Germany the necessary rubber manufactures, these goods soon went on the list of its exports.

The "Trëugolnik," although operating under the name of the Russian American India Rubber Co., was in fact a German concern. Founded at Petrograd in 1860 with a capital of 500,000 rubles, it may be said to have been in great part responsible for the firm establishment of the rubber industry in Russia. At one time it was considered to be the largest works of its kind in the world, while its exhibits at the Chicago World's Fair in 1893 and at the Paris Exposition in 1900 attracted a good deal of attention, and were the subject of no small amount of comment. Starting principally with the manufacture of rubber shoes, for which it soon became famous, the "Trëugolnik" in time added a large variety of other lines, including tires. Comparatively recent reports stated the intention of the company to increase the capital stock to 30,000,000 rubles, an advance quite in keeping with its reputation as a most progressive firm.

These builders of Russian commercial and industrial prosperity the violence of the revolution threatens to overthrow—unless the need of the hour calls forth a Russian Napoleon capable of controling the elements of self-destruction in time and saving the nation from further calamity.

Rubber Planting Notes.

PROGRESS IN NORTH BORNEO.

THE annual report on agriculture in North Borneo for 1916 states that the area planted with rubber at the end of 1916, as reported by estate managers, was 30,910 acres, or only 529 acres more than in 1915. These figures do not include the small holdings of Chinese and natives. The number of trees in tapping at the end of the period under review was 2,030,150, or slightly more than half the total number planted, which is returned at 4,049,050, while the area in full tapping was given as 14,720 acres, against 9,806 acres in 1915.

The production of rubber increased 84.4 per cent on the total for 1915, the amounts being 1,937.7 tons and 1,050 tons, respectively. Although the price fluctuated, it was on the whole better; the highest price for Smoked sheet reached 4*s.* 2*d.* and the lowest, 2*s.* 1½*d.*

LABOR.

The number of coolies employed increased to 12,334, or 2,698 more than for 1915. The extension of tapping operations necessitated this increase. The number was made up of 5,179 Chinese, 4,280 Javanese, and 2,875 of other races; very few natives of North Borneo were among these.

PESTS AND DISEASE.

Disease is becoming more widespread, *Corticium salmonicolor*, or pink disease, being the most common. On all estates visited, trees which had ceased to yield latex were noted, the affected trees in some cases numbering well over a thousand. The cause is supposed to be excessive flushing of the latex vessels. During 1916 *Spaerostilbe repens*, not previously recorded in North Borneo, was found on two estates. This disease favors low-lying lands. *Poria hypolateritia* and *Ustulina zonata* were also discovered, the latter attacking a few trees on one estate.

Boring beetles were fairly common, as were white ants, although the damage done was not large. A good deal of trouble was caused on the West Coast and near Sandakan, by wild pigs, which ate the bark of rubber trees, with serious results.

THINNING AND TAPPING.

Gradually local planters are realizing the need for thinning out, and most of the earlier planted areas in North Borneo have been thinned, but in some cases not before the trees had suffered from overcrowding. Considering that more than half of the rubber is beyond the tapping age, the average of 133 trees per acre indicates the need for extensive thinning out.

The most common system of tapping is that of placing two superposed cuts on one quarter of the tree. Tapping on a single cut, over one-third of the tree, is, however, coming into favor.

THE EFFECT OF THINNING OUT ON PRODUCTION.

To prove that systematic thinning out of closely planted *Hevea* gives good results, Dr. P. Arens quotes the experience of a planter in Malang, Java. In three groves of eight-year-old trees planted 12 by 24 feet, every alternate row was removed, thus bringing the distance to 24 by 24 feet. Although half the trees had been taken away, the average production per grove per tapping-day during three months after thinning out was 4.12 pounds as against 4.28 pounds for the same period before thinning out. At the same time, tapping was carried on in three other groves where no changes had been made, but which were operated solely for checking purposes—to observe the influence the weather and factors other than thinning out had on the yield. It was found that during the corresponding periods the average yields here were 3.17 and 3.33 pounds, respectively. The differences are similar in both cases, proving that decrease in yields was not due to thinning out.

A like experiment made with a grove originally planted 12 by 12 feet, from which three-fourths of the trees had been removed, gave similar results.

DEFECTS IN PREPARED RUBBER.

The Besoeki Experiment Station, Java, records several cases of rustiness in sheet during the wet season. In most instances the precautions recommended by Sidney Morgan—soaking in water, brushing and bringing sheets to the smoke house without delay—were sufficient, but on one estate the evil persisted, though when the dry season set in this same estate found no rustiness, even when sheets hung out for days after rolling, showing that climate is responsible for rustiness.

Where tiny holes appeared on the bottom of sheets, the remedy was found in substituting enamel coagulating pans for zinc, in putting the sheets in cement pans of water immediately after coagulation, and by adding formaline.

Wrinkles on the bottom of sheets were caused by economizing in the use of acetic acid and thus retarding coagulation. By coagulating more rapidly, the wrinkles disappeared.

INDIAN IMPORT OF RUBBER PLANTS.

The Government of India has issued instructions regarding the restrictions to be observed and the precautions to be taken in regard to the importation of plants into India. With certain exceptions, plants will be permitted to enter only at the ports of Bombay, Calcutta, Madras, Rangoon, Karachi, Danushkodi and Negapatam, and they will be subjected to fumigation with hydrocyanic acid gas at the port of entry. Rubber plants will not be imported by sea unless accompanied by an official certificate that the estates from which the plants have originated are free from certain diseases and pests.

BRAZILIAN NOTES.

By Our Regular Correspondent.

PERSISTENT rumors of various kinds, all more or less tending to unsettle the local market still further, are continually circulating and are being manipulated by certain unscrupulous parties. Thus one constantly hears that the Federal Government will aid in the valorization of rubber—a proceeding which will hardly improve conditions and most probably end in financial loss to the Government. Again, it is whispered that important American and British concerns have been bearing the market. Others will have it that the Brazilian Government is endeavoring to induce the French Government to add rubber to the list of articles to be carried by the former German vessels taken into Brazilian service. The feverish state of affairs which the above betrays is in no wise lessened by the high rate of exchange prevailing. In view of these circumstances it seems quite probable that unless a sudden drop in exchange comes to relieve the situation, the local rubber country will find itself in serious financial difficulties.

CLEAN UP OF GERMAN EXPORTERS.

At last the black-list has succeeded in absolutely ousting the German from the rubber trade in Para and Amazonas. The Germans, who had replaced nearly all Brazilian, British and Portuguese exporters, now have the pleasure of learning that of the Brazilian rubber trade 35.2 per cent is in the hands of Brazilian and Portuguese firms and 30.5 per cent is the share of British firms, while the remainder falls to American firms.

JAPANESE BANK IN RIO DE JANEIRO.

Japanese plans for extending relations with Brazil are developing apace. It now appears that the Yokohama Specie Bank, a Japanese institution, has taken steps towards its establishment in Rio de Janeiro. One of the chief objects of the bank is to encourage commerce between Japan and Brazil.

PHILIPPINE AGRICULTURAL ADVISER HERE.

A RECENT visitor to the United States is P. J. Wester, the agricultural adviser to the Department of Mindanao and Sulu, Philippine Islands. Mr. Wester will be remembered by many as being connected with the United States Department of Agriculture in charge of the plant introduction station at Miami, Florida. He was also connected with the Bureau of Agriculture of the Philippine Islands before accepting his present position in Mindanao. With this somewhat unusual experience in tropical and subtropical work, he is to-day perhaps the best-informed man on Philippine economics. His presence in the United States will add interest to the monograph published over his name in "The Philippine Agricultural Review," Vol. X, No. 3, Third Quarter, 1917, on "Rubber Culture in the Philippines." Portions of this, relating to *Hevea* in the Philippines, will be found, credited to the author, in the Editor's story of the Philippines in this issue. The parts relating to planting directions, diseases, etc., by no means the least important, are commended to all present and prospective planters. Mr. Wester, now in Washington, returns to the Philippines early in April.

P. J. WESTER.

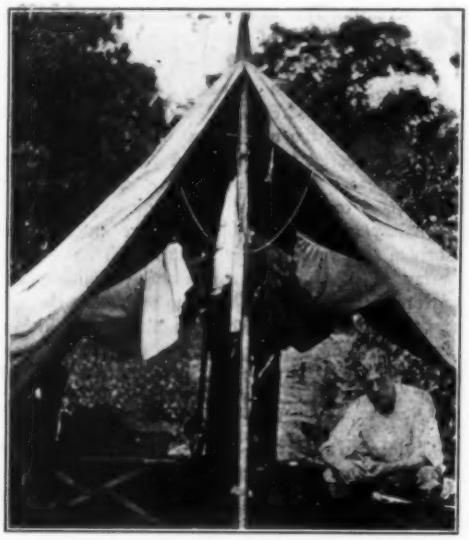
J. L. HERMESSEN, F. R. G. S.

THE appearance in the "Geographical Review' of an exceedingly interesting description of exploration on the Rio Zamora in Ecuador, by J. L. Hermessen, F. R. G. S., will recall to many, one who for years has followed rubber planting both in theory and practice.

Being a British civil and mining engineer, with a love of travel, and an insatiable appetite for knowledge, the beginnings of rubber planting in Mexico in 1900 at once attracted his attention. Soon he knew all that was then known on the subject.

If one has traveled much, written acceptably, and by exploration and observation added to the sum of human knowledge, his achievements are sometimes recognized by the bestowal of a fellowship in the British Royal Geographical Society. Mr. Hermessen, through travel, exploration and by the writing of many essays of value, has for many years been a "fellow" of this society. To show his appreciation of what that society of notables has accomplished in scientific investigation, he takes pride in exercising the privilege of writing F. R. G. S. after his name.

From 1904 onward Mr. Hermessen devoted his whole time for several years to rubber planting in Mexico. In 1909 an article by him was published in "Tropical Life," London, on *Castilloa* rubber cultivation on the Isthmus of Tehuantepec, in which he discussed some important and not generally understood points, and presented authentic data on the then much-debated question of the latex yield of *Castilloa elastica*. The matter was subsequently incorporated, as a special chapter, in H. Hamel-Smith's book, "Soil and Plant Sanitation on Cacao and Rubber Estates." Traveling through Chiapas (the southermost state of Mexico on the Pacific side) in 1910, Mr. Hermessen studied the development of rubber planting in that section of the country, the results of his observations appearing in two articles under his name in the February and March issues of THE INDIA RUBBER WORLD of the same year. Mr. Hermessen was afterwards associated with the late J. C. Harvey in the making of a series of experimental tappings of seven-year-old Para rubber trees (*Hevea brasiliensis*) grown on the latter's property of La Buena Ventura from seed imported from Ceylon. In the possibility of the adaptation of this species to the physiographic conditions of Southern Mexico both were keenly interested, and from time to time Mr. Hermessen reported progress in this direction in special contributions to the pages of THE INDIA RUBBER WORLD. Up to the period of the enforced abandonment of the rubber plantations in Mexico through revolutionary activities, trial plantings of *Hevea* had proved so satisfactory as fairly to encourage the hope, long held by Mr. Harvey, that the Amazon tree might eventually replace the indigenous *Castilloa*, and aid in the rehabilitation of some of the estates whose resources had been drained by the failure of the latter as a commercial culture. In



J. L. HERMESSEN IN CAMP IN ECUADOR.

September of 1913 Mr. Hermessen left Mexico for South America, to take up the appointment of chief engineer of the survey of the Trans-Amazon Railway of Ecuador, remaining there up to the end of 1914, when he resigned to return to England for war service. It was immediately after severing his connection with the above-mentioned work that he undertook the journey, on his own account, into the Amazon region of Ecuador, which forms the subject of his narrative in "The Geographical Review." Reaching London in June of 1915, he endeavored to obtain a commission in the Royal Engineers, but was refused on the score of age. He finally joined the Ministry of Munitions, and in May of 1916 came to America on inspection duty, and is still "doing his bit" on this side of the Atlantic.

THE EXECUTIVE COMMITTEE OF THE NATIONAL FOREIGN TRADE Council announces that "owing to the railroad congestion and the desire of the Council to co-operate with the Government in the relief of the situation due to the war," the dates of the Fifth National Foreign Trade Convention to be held at Cincinnati, Ohio, have been changed from February 7, 8 and 9 to April 18, 19 and 20, 1918.

Recent Patents Relating to Rubber.

THE UNITED STATES.

ISSUED JANUARY 1, 1918.

NO. 1,251,576. Tire or interliner structure. W. F. Ray, Chicago, Ill.
1,251,585. Tire valve. M. C. Schweinert, West Hoboken and H. P. Kraft, Ridgewood—both in N. J.
1,251,717. Vehicle tire. T. C. Watkins, assignor of one-third to C. M. McFarland—both of Ingram, and one-third to T. A. Sprague, Bellevue—both in Pa.
1,251,758. Toy balloon valve. F. M. Dayton, New York City.
1,251,767. Device for retaining a gasket in a hose coupler. E. E. Gold, assignor to Gold Car Heating & Lighting Co.—both of New York City.
1,251,902. Demountable split rim tool. J. J. McLane, Boston, Mass.
1,252,077. Reversible wheel rim. S. M. Berry, Eagle township, Boone county, assignor to T. A. Merriman and E. E. Merriman, Brown township—both in Ind.
1,252,081. Combined pneumatic and steel tire. J. Blair, Jr., Rock Springs, Wyo.
1,252,085. Dust cap for valve stems. H. G. Butzow, Sycamore, Ill.
1,252,107. Pneumatic vehicle tire. W. G. Haigler, Colorado Springs, Colo.
1,252,173. Inflated apparatus for preventing drowning and assisting swimming. J. J. Pritchard, Birmingham, England.

ISSUED JANUARY 8, 1918.

1,252,391. Demountable tire rim. W. R. Briggs, Stratford, Conn.
1,252,394. Tire armor. H. M. Butler, Milton, Pa.
1,252,470. Demountable rim. H. W. Melling, Jackson, Mich.
1,252,499. Hair fluffer and perfumer, including a rubber bulb. G. L. Scheel, Chicago, Ill.
1,252,618. Dressmaker's fitting form comprising an inflating bag. J. O. H. Roy, Montreal, Quebec, Canada.
1,252,660. Hose coupling. C. M. Clay, Mexico, Mo.
1,252,697. Swimming appliance. Y. Ikeda, Gardena, Cal.
1,252,703. Pneumatic tire. W. Kline, Lake, assignor of one-third to F. L. Kryder and one-third to J. P. Frisby, both of Akron—both in Ohio.
1,252,830. Auto tire. J. Muzik, assignor of one-third to J. Suchanek and one-third to A. Andracek—all of Eureka, Cal.
1,252,839. Wheel rim and tire construction. H. Raflovich, New York City.
1,252,842. Life preserver. W. G. Richardson, Cambridge, Mass.
1,252,843. Sound reproducing machine, including needle-holder with soft rubber cushioning block. A. H. Rintelman, Chicago, Ill.
1,252,860. Teat cup. H. W. Terry and J. W. Fowler—both of Toronto, Ontario, Canada.
1,252,921. Vehicle wheel tire. D. Millar, St. Louis, Mo.
1,252,997. Traction shoe. M. D. Byrne, Jr., Waterbury, Conn.
1,253,046. Conduit for electrical conductors. J. A. Kennedy, assignor to Tubular Woven Fabric Co.—both of Pawtucket, R. I.
1,253,065. Hose connector. E. S. Looze, Flint, Mich.
1,253,098. Tire valve. E. Richards, Los Angeles, Cal.
1,253,113. Anti-skidding device for vehicle wheels. H. D. Weed, Syracuse, N. Y., assignor to American Chain Co., Inc., Bridgeport, Conn.
1,253,119. Demountable rim. R. M. Baird, assignor of one-third to B. E. Baird and one-third to W. E. Baird—all of Salt Lake City, Utah.
1,253,122. Life preserver. M. Baron, Newark, N. J.
1,253,154. Protective shoe for pneumatic tires. J. W. Comer, Chickasha, Okla.

ISSUED JANUARY 15, 1918.

1,253,259. Cooling device for automobile tires. I. Leo, Chicago, Ill.
1,253,273. Protector for pneumatic tires. C. F. Nickerson, Reading, Mass.
1,253,325. Vehicle wheel rim. S. Winscott, Sturgeon, Mo.
1,253,370. Life-saving suit. W. Gieracki, Avon, Conn.
1,253,381. Solid tire tread. O. A. Hollis, assignor to Hollis Automatic Traction Jack Co.—both of Pittsburgh, Pa.
1,253,473. Noise-reducing typewriter support comprising alternating layers of wood, rubber and felt. M. K. Davis, St. Louis, Mo.
1,253,501. Inner tube protector. R. N. Lago and W. J. Barrett—both of San Francisco, Cal.
1,253,552. Honeycomb cushion tire. S. Winscott, Sturgeon, Mo.
1,253,555. Surgical basin provided with a flexible drain-tube. S. Wolf, New York City.
1,253,564. Package, of elastic material. J. W. Barber, Newton, Mass.
1,253,573. Dust-cap for tire valves. W. R. Burke, Cleveland, Ohio, assignor to A. Schrader's Son, Inc., Brooklyn, N. Y.
1,253,686. Man's garter. M. B. Hammond, assignor to Thomas P. Taylor Co.—both of Bridgeport, Conn.
1,253,701. Rubber tread portion for shoes. L. McMillan, Wilmington, N. C.
1,253,740. Pneumatic tire armor. S. G. Smith, Plainfield, N. J.
1,253,752. Pneumatic-tired vehicle wheel. C. C. Wais, Cincinnati, Ohio.
1,253,753. Pneumatic-tired vehicle wheel. C. C. Wais, Cincinnati, Ohio.
1,253,806. Pneumatic-tube-stem dust-cap. W. L. Frazer, San Diego, Cal.
1,253,866. Wheel rim. J. E. Montgomery, assignor of one-third to W. Jennings—both of Lancaster, Ky.

Chemical Patents will be found on page 349.

1,253,888. Artificial eye including a main body portion of hardened white rubber. J. O. Rosser, Mill Hall, Pa.
1,253,985. Resilient tire. A. P. Laforge, Lincoln, Cal.
1,253,988. Combined rim and casing. H. R. Lorenz and H. W. Ojendyk—both of Ashton, Nebr.

ISSUED JANUARY 22, 1918.

1,254,015. Cellular automobile tire. J. C. Anderson, Washington, D. C.
1,254,016. Cushion tire. J. C. Anderson, Washington, D. C.
1,254,050. Tire tread. C. Macbeth, assignor to The Dunlop Rubber Co., Ltd.—both of Birmingham, England.
1,254,089. Tire shoe. D. R. Thomas, Oklahoma, Okla.
1,254,120. Sectional wheel rim. L. W. Close, Manhattan, Mont.
1,254,150. Typewriter platen. O. F. Müller, Dorchester, assignor to Thorp & Martin Typewriter Co., Boston—both in Mass.
1,254,464. Tire tread. H. M. Benson, assignor of one-half to L. G. Fixen—both of Los Angeles, Cal.
1,254,489. Rubber heel. G. S. Ellithorpe, Chicago, Ill.
1,254,546. Automobile wheel rim. J. D. Smith, assignor of one-half to J. M. Utz—both of Orland, Cal.
1,254,576. Rubber tire. L. J. Campbell, Chicago, Ill.
1,254,613. Vehicle wheel having a sectional metal rim with a section of rubber tire vulcanized to each rim section. A. V. Lyall, New York City.
1,254,629. Sponge rubber ear cushion for telephone receivers. T. W. Miller, assignor to The Faultless Rubber Co.—both of Ashland, Ohio.

ISSUED JANUARY 29, 1918.

1,254,654. Arch support. R. S. Carling, assignor to Pneumatic Surgical Appliance Co.—both of Los Angeles, Cal.
1,254,793. Rubber tire protector. L. W. Geerekey, Douglas, Ariz. J. A. Ketcherside, administrator of said L. W. Geerekey, deceased.
1,254,884. Pneumatic tire shoe and method of making same. G. H. Chinnock, Brooklyn, N. Y.
1,254,994. Automobile tire. H. Diener, Washington, D. C.
1,255,000. Tire construction. A. R. Fergusson, Chicago, Ill.
1,255,027. Suction mechanism for dental plates. J. Lehner, Pittsburgh, Pa.
1,255,086. Paper wrapper for automobile tires, etc. A. E. Dubey, Brooklyn, assignor to Domestic Mills Paper Co., New York—both in New York.
1,255,091. Quick-detachable dust cap for pneumatic tires. L. L. Garibaldi, Oakland, Cal.

THE DOMINION OF CANADA.

ISSUED OCTOBER 31, 1917.

179,515. Force pump. M. Block, Chicago, Ill., U. S. A.
179,516. Resilient wheel. W. M. Boenning, Manitowoc, Wis., U. S. A.
179,519. Bath mat. W. H. Clarke, Akron, Ohio, U. S. A.
179,547. Bead for tire casings. T. J. Mell, Wabash, Ind., U. S. A.
179,610. Garment supporter. S. A. Brandt, Dundee, Mich., U. S. A.
179,620. Garter. H. J. Esser, New Orleans, La., U. S. A.
179,647. Noise reducing typewriter platen comprising a tubular layer of an elastic cushioning substance. W. B. Mulock, Winnipeg, Manitoba, Canada.
179,662. Ear tube attachment for telephone receivers. E. L. Rosenthal, New York City, U. S. A.
179,805. Cover for automobile tires. G. Riddle, Riddle, Idaho, U. S. A.
179,822. Tire protector. L. L. Warr, Malden, Mass., U. S. A.
179,838. Teat cup liner. The De Laval Separator Co., New York City, assignee of M. Leitch, Poughkeepsie—both in New York, U. S. A.
179,839. Teat cup. The De Laval Separator Co., New York City, assignee of M. Leitch, Poughkeepsie—both in New York, U. S. A.
179,970. Pocket billiard table having rubber-cushioned metal galley channels. The Brunswick-Balke-Collender Co., assignee of T. B. Treiber—both of Chicago, Ill., U. S. A.
179,971. Hernia cushion. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, Canada, assignee of A. C. Eggers, Brooklyn, N. Y., U. S. A.
180,035. Respirator or inhaler. R. Donald, Highgate Road, London, England.
180,074. Automobile tire. I. Normandy, St. Catharines, Ontario, Canada.
180,143. Vehicle tire. J. D. Cooper and W. Parsons, assignee of a third interest—both of Toronto, Ontario, Canada.
180,148. Inner tube for pneumatic tires. C. L. Dawson, Huntington Park, Cal., and E. W. Zinser, assignee of a half interest, Chicago, Ill.—both in U. S. A.

THE UNITED KINGDOM.

ISSUED DECEMBER 19, 1917.

110,543. Rubber hose pipe clamp. F. Neppach, 24 Haldenstrasse, Feurbach, Stuttgart, Germany.
110,653. Electric battery separators. J. M. Flannery, Forbes street, Pittsburgh, Pa., U. S. A.

Machinery and Process Patents on page 352.

THE UNITED KINGDOM (continued).

ISSUED DECEMBER 28, 1917.

110,686. Air beds. S. W. Burns, 12 Luna Road, Thornton Heath, Surrey.
110,698. Inflating means for life-saving belt. B. A. Geiger, 6341 Blackstone avenue, Chicago, Ill., U. S. A.
110,701. Detachable rubber heel. E. S. Helwitz, 1129 East Fifteenth street, Brooklyn, N. Y., U. S. A.
110,741. Hose suspenders. M. B. Hammond, 140 James street, Bridgeport, Conn., U. S. A.
110,742. Treatment for preservation of wheel tires. F. S. Walton, 1332 Orthodox street, Frankford, Philadelphia, Pa., U. S. A.
110,777. Reinforced fabric materials for footwear, floor-cloth, belting, tires, etc., comprising a layer of balata, india rubber or gutta percha. P. Chick, Market Square, Highworth, Wiltshire.
110,802. Crutches, embodying supporting sling for the body, with elastic crosspiece to prevent undue swaying of legs. G. H. Humphries, 46 Southwater Road, and E. van Biene, 10 Lower Maze Hill—both in St. Leonards-on-Sea.
110,818. Colon irrigator. A. R. Fisher, 540 West 146th street, New York City, U. S. A.
110,824. Artificial teeth, employing soft rubber between porcelain and metal matrix, or between the latter and the vulcanite denture. A. A. Nove, Wilmslow Road, Fallowfield, Manchester.

ISSUED DECEMBER 31, 1917.

110,931. Securing rubber soles to turn-shoes. United Shoe Machinery Co., 205 Lincoln street, Boston, Mass., U. S. A.

ISSUED JANUARY 9, 1918.

110,985. Rubber geographical globes. E. M. Walters, 8 Compton avenue, Brighton.
110,989. Non-skid device comprising a series of metal segments fitted between twin elastic tires. E. P. Bouraciez, 27 Raymond avenue, Thornton Heath, Surrey, and E. Wise, 44 Sedgeley avenue, Sneinton, Nottingham.
110,991. Protective band formed with spaced hollow projections for use between the air-tube and tire casing. R. P. Childe, 27 Victoria street, Belfast.
111,000. Gas masks or respirators. R. H. Davis, 187 Westminster Bridge Road, London.

ISSUED JANUARY 16, 1918.

111,189. Teapot with rubber tube on the end of the spout. T. W. Bennett, Victoria Pottery, Liverpool Road, Burslem, Staffordshire.
111,202. Boot sole manufactured from waste rubber. C. J. Andkjaer, 9 Gasvarksvej, Copenhagen.
111,214. Horseshoe pads. F. S. Turner, 71 Lisson Grove, St. Marylebone, London, and W. R. Bibby, Denmark street, Diss, Norfolk.
111,234. Wheel tire. A. C. Hileman, Butler, Pa., U. S. A.
111,250. Life-saving suits. G. F. Brace, Cahir Co., Tipperary.
111,251. Wheel tire. G. R. Teunissen, 18 Seehofstrasse, Zürich, Switzerland.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

484,526. (July 26, 1916.) Rubber pads for heels and soles of shoes, also for reinforcing fabric soles, and the process of manufacture. M. R. Lafitte.
484,587. (February 22, 1917.) Improvements in non-skid chains. A. J. Heinsius.
484,696. (March 5, 1917.) Improvements in pneumatic tires for automobiles and other vehicles. A. A. Crozier.
484,707. (March 6, 1917.) Elastic wheel for automobiles and similar vehicles. F. E. Anderson.
484,708. (March 6, 1917.) Elastic wheel for automobiles and similar vehicles. A. Burnay.
484,716. (March 6, 1917.) Armored rubber. P. C. Le Houssel.
484,723. (March 7, 1917.) Inner tire core. J. H. Grube and P. J. Maurer.
484,771. (March 13, 1917.) Improvements in an inner core. G. E. Gelmore and F. V. Roesel.
484,821. (March 17, 1917.) Improvements in tire wheels. W. H. Hayter.
484,880. (March 21, 1917.) Improvements in pneumatic tires for automobiles and other vehicles. A. A. Crozier.

TRADE MARKS.

THE UNITED STATES.

99,219. The word MONARCH beside the representation of a lion's head—waterproof cements and repairing composition. Richmond Waterproof Products Co., Port Richmond, N. Y.
101,923. Double-outlined red triangle with white space within—rubber boots and shoes. Goodyear Rubber Co., Middletown, Conn.
104,854. The word AJAX—belting and hose made of rubber and fabric. The Gutta Percha & Rubber Mfg. Co., New York City.
106,437. Representation of a bulldog's head with the words BULL GRIP above and below—A self-vulcanizing patch. R. K. Carruth, Macon, Ga.
107,609. Double-outlined oblong divided by superimposed triple-outlined circle in center; within the circle a conventionalized representation of a cat; within the oblong the words CAT NAK, one each side of the circle—a puncture-sealing or puncture-healing compound. The Cat-Nak Co., Chicago, Ill.
94,030. The words SAINT NICK—rubber boots and shoes. L. Candee & Co., New Haven, Conn.
105,141. Representation of a bell with the phrase 2 IN 1 vertically arranged on the side—rebuilder composed of rubber and fabric for rubber tires. Bell 2 in 1 Tyre Co., Inc., Richmond, Va.
106,340. Representation of a tire through which a United States warship is passing—rubber vehicle tires and inner tubes therefore. The Dreadnaught Tire & Rubber Co., Orangeville, Md.
106,589. Representation of a shield bearing a picture of the ark, and the words THE NEW-ARK superimposed—boots and shoes of leather, rubber, etc. Morton Samuels, Baltimore, Md.
106,905. The word LIGHTNING—automobile tires of rubber and fabric. Carlisle Cord Tire Co., Inc., New York City.
107,035. The word COLONEL—golf balls. St Mungo Manufacturing Co. of America, Newark, N. J.
107,597. The words KWICK-ON—nursing nipples and glass bottles to be used in connection with the same. The Vant Woud Rubber Co., Brooklyn, N. Y.

THE DOMINION OF CANADA.

22,964. The word OAK—tires and rubber goods. Oak Tire & Rubber Co., Ltd., Toronto, Ontario.

THE UNITED KINGDOM.

379,911. Representation of a tree topped by a half-squatting pickaninny with outspread arms; beneath all the word BYGUM—All goods included in Class 4, but not including raw india rubber and waste india rubber and not including any goods of a like kind to any of these excluded goods. F. W. Radford, 6 South Castle street, Liverpool.
379,952. The word LUMOS—packing and hose of all kinds, not included in other classes. H. Lumb, trading as Arthur Lumb, Atlas Oil Works, Mount street, Halifax.
380,267. Representation of a duck in the rain with a closed umbrella tucked under its wing; the word DUCKDRI underneath the whole—waterproof clothing. E. A. Watts, 8 Bulwark, Brecon, South Wales.
380,362. The word WREN above a representation of a wren in black and white—flax hose-pipes. The Raven Hose & Belting Co., 295 Liverpool street, Salford, Manchester, Lancashire.
380,364. The word Crow above a representation of a crow in black and white—flax hose-pipes. The Raven Hose & Belting Co., 295 Liverpool street, Salford, Manchester, Lancashire.
380,365. The word ROBIN above a representation of a robin in black and white—flax hose-pipes. The Raven Hose & Belting Co., 295 Liverpool street, Salford, Manchester, Lancashire.
380,376. The word VULMOS—vulcanized fiber in rods, tubes and sheets; jointing, valves (not parts of machinery), washers, disks, packing, brake blocks, insulators, linings, ferrules, rings, rollers (not parts of machinery), wedges, handles, friction strips, friction blocks, friction shoes, baskets, switch bars, adjusters, for electrical lamps, and electrical and mechanical bases, all made of vulcanized fiber and being goods not included in other classes. J. Wood, trading as Mosses & Mitchell, Chiswell Works, 122-124 Golden Lane, London, E. C. 1.
380,670. The word EREX—ink and pencil erasers. D. M. Duncan, 70 Wellington street, Glasgow.
380,167. The words MEND A TEAR (exclusive use of words not claimed) with the word A superimposed above the presentation of a flat-iron—repairing patches, of which india rubber or gutta percha is the predominating material. The Leicester Rubber Co., Ltd., Granby Rubber Works, Post Office Place, Leicester.
380,328. The word CLINCHER—all goods included in Class 37. The North British Rubber Co., Ltd., Castle Mills, Fountainbridge, Edinburgh, Scotland.
380,813. The word CAMBLAC—instruments, apparatus and contrivances, made wholly or partially of rubber, not medicated, for surgical or curative purposes. Campbell, Achnach & Co., Ltd., 59 Wallace street, Glasgow.
380,815. The word HYDRINE—instruments, apparatus and contrivances, made wholly or partially of rubber, not medicated, for surgical or curative purposes. Campbell, Achnach & Co., Ltd., 59 Wallace street, Glasgow.

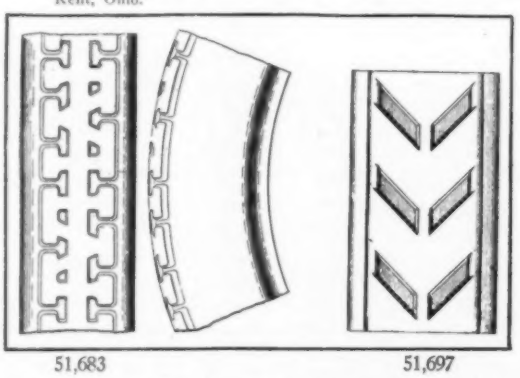
NEW ZEALAND.

13,936. The word CONDOR—india rubber, gutta percha or balata belting. The Manhattan Rubber Mfg. Co., New York City.
14,148. The word KEDS—rubber, leather and fabric footwear such as boots and shoes and the like. United States Rubber Co., New York City.

DESIGNS FOR TIRES.

THE UNITED STATES.

51,683. Tire tread. Term 14 years. Patented January 8, 1918. D. M. Mason, assignor to The Mason Tire & Rubber Co.—both of Kent, Ohio.



51,683 51,697

51,697. Vehicle tire. Term 14 years. Patented January 15, 1918. A. F. Seiberling, assignor to Indiana Rubber & Insulated Wire Co.—both of Jonesboro, Ind.

Review of the Crude Rubber Market.

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NEW YORK.

EASY market conditions in spot and future rubber, prevailing early in the month, were responsible for the steady decline in prices that continued until an active demand from short interests rallied the market. There was, however, very little tendency on the part of dealers to accumulate supplies and with the manufacturing interest lacking, all activity subsided. A firm undertone prevailed due to delayed arrivals of forward shipments from the East. About the middle of the month manufacturer's inquiries and orders for spot and nearby rubber were recorded, and the market developed firmness despite the quiet demand.

The only effect of the President's proclamation, licensing all imports including crude rubber, was to strengthen the market. It was well understood in the trade that the comparatively small tonnage required for rubber imports would not be denied an industry that furnishes supplies most necessary to winning the war.

The market continued firm and was featured by an active demand for Paras resulting in an upward turn for these grades. Trading, however, was interrupted by the week-end holidays and all market interest subsided for the time being. During the last week of the month there was very little demand and quiet prevailed in the crude rubber market.

PLANTATIONS. While a fairly large volume of business has been done in plantation rubber, particularly spot and nearby, featuring Smoked sheet ribbed, the general market situation was quiet and frequently dull. On February 1, First latex crêpe spot was 52½ cents and July-December, 51 cents. Smoked sheet rubber spot was 51½, with July-December at 50 cents. Quotations on February 26 were First latex crêpe, spot, 55½ cents and April-June 53 cents. Smoked sheet ribbed spot was 57 cents and April-June 51½ cents.

PARAS. Brazilian rubber has been in fair demand in which the manufacturers were conspicuous buyers of limited supplies. The market was noticeably strengthened by reported curtailment of shipping from Amazon ports, while higher quotations on the Para market than at New York have added further support to the situation. Prices have not changed materially during the month.

AFRICANS. There has been very little call for these grades and supplies are not plentiful. The expense of washing prevents a more extended use of these rubbers. Prices quoted are largely nominal.

CENTRALS. Considerable activity was noticed in Centrals last month and available stocks were visibly depleted. Values, however, have not undergone much change.

LONDON.

Dullness has characterized the London market for the most part, although several round lots changed hands at prices a shade under the market. The disposal of the large stocks held for Russian account has been the subject of considerable speculation as to what effect a possible liquidation would have on the commodity market.

First latex crêpe was quoted 27*d*. for spot on February 1, with Smoked sheet ribbed at 26¾*d*. and on February 25 the quotations were 27½*d*. and 27*d*. respectively.

STATISTICS. London and Liverpool imports for December were 6,240,700 pounds, value £796,653, compared with 11,401,100 pounds, value £1,504,239 for November. Reexports for December were 3,287,800, value £410,774 compared with 4,386,100 pounds, value £565,563 for November.

SINGAPORE.

The average prices obtained at the auctions held February 3, 9, 18 and 23 were, First latex crêpe, 38.75 cents and Smoked sheet, ribbed, 38.04 cents, compared with 42.92 cents and 41.86 cents, last month's averages for Latex and Ribs, respectively.

NEW YORK SPOT QUOTATIONS.

Following are the New York spot quotations one year ago, one month ago and February 26, the current date.

	Mar. 1, 1917.	Feb. 1, 1918.	Feb. 26, 1918.
PLANTATION HEVEA—			
First latex crêpe			
*Hevea first crêpe	87 @	52½ @	55½ @
Amber crêpe No. 1	85 @	49½ @	48 @
Amber crêpe No. 2	@	@	46 @
Amber crêpe No. 3	@	@	44 @
Amber crêpe No. 4	@	@	42 @
Brown crêpe, thick clean	83 @	48 @49	45 @
Brown crêpe, thin clean	@	@	45½ @
Brown crêpe, thin specky	@	@	43 @
Brown crêpe, rolled	@	@	31 @
Smoked sheet, ribbed standard quality	87 @	51 @51½	57 @
*Hevea ribbed smoked sheets			
Smoked sheet, plain standard quality	@	50½ @	55 @
*Hevea plain or smooth smoked sheets			
Unsmoked sheet, standard quality	@	@	53 @
*Hevea unsmoked sheets			
Colombo scrap, No. 1	@	48 @	38 @
Colombo scrap, No. 2	@	45 @	35 @
BRAZILIAN PARAS—			
Upriver fine	80 @	57½ @58	57 @
Upriver medium	@	51 @51½	51 @
Upriver coarse	54 @	37 @	36 @
Upriver weak fine	@	@	45 @
Upper caucho ball	55 @	36 @37	35 @
Islands fine	@	47½ @	47 @
Islands medium	@	@	**37 @
Islands coarse	36 @	25 @	24 @
Cametá coarse	38 @	25 @	24½ @
Lower caucho ball	51 @	32 @	32 @
Peruvian fine	@	@	53 @
Tapajos fine	@	@	53 @
AFRICANS—			
Accra flake, prime	32 @	45 @46	47½ @48
Niger flake, prime	@	@	47½ @48
Benguela, extra No. 1, 28%	47 @	28 @	**29 @28
Benguela, No. 2, 32½%	44 @	27 @	**28 @
Congo prime, black upper	@	45 @	48 @
Congo prime, red upper	57 @	@	45 @
Rio Nunez ball	68 @	62 @	@
Rio Nunez sheets and strings	@	@	**63 @
Conakry niggers	66 @	62 @	@
Massai sheets and strings	65 @	@	**63 @
CENTRALS—			
Castilloa block	@	46 @	46 @
Corinto scrap	52 @	36½ @	35 @
Esmeralda sausage	51 @	36 @	35 @
Central scrap	@	35 @	33 @
Central scrap and strip	@	@	31½ @32
Central wet sheet	@	@	26 @
Guayule	56 @	28 @	28 @
MANICOBAS—			
Ceara negro heads	@	31 @	**33 @
Ceara scrap	@	27 @	**29 @
Manicoba special	32 @	40 @	37 @
Manicoba extra	@	@	33 @34
Manicoba regular	@	@	28 @
Mangabeira thin sheet	32 @	39 @	35 @
Mangabeira thick sheet	@	@	30 @
EAST INDIAN—			
Assam crêpe	78 @	36 @	**37 @
Assam onions	@	@	**36 @
Penang block scrap	@	@	**34 @
Borneo, No. 2	@	24 @	**24 @
No. 3	@	@	**18 @
BALATA—			
Block, Ciudad Bolivar	65 @	71 @	72½ @
Colombia	@	@	57 @
Panama	@	@	54 @
Surinam sheet	78 @	85 @86	88 @
amber	@	@	97 @
fair average quality	@	@	88 @
PONTIANAK—			
Pressed block	08¾ @	17 @18	14 @21
Banjermassin	@	12 @13	14 @13
GUTTA PERCHA—			
Red Macassar	1.90@3.00	2.00@3.00	2.22@
Gutta Siak	@	.19@	.20@ .25

*Rubber Association of America nomenclature.
**Nominal.

RECLAIMED RUBBER.

The same conditions that have adversely influenced trade movement in all markets for rubber supplies were effective in the market for reclaimed rubber during the past month, resulting in quiet trading with prices unchanged.

NEW YORK QUOTATIONS.

FEBRUARY 26, 1918.

Subject to change without notice.

Standard shoe reclaim	*lb.*	.16¼ @	
tire reclaim	*lb.*	.17¼ @	.17½

THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows:

The market for commercial paper has remained through February about the same as in January, the demand being light both from city banks and those out of town, the ruling rates on the best rubber names being about 6 to 6¼ per cent, and those not so well known 6½ to 7 per cent.

MARKET CABLE SERVICE FROM LONDON.

The following market report has been cabled from London:

		Standard Crêpe.	Ribbed Smoked Sheets.	Market.
February 4	*pence*	27¾	27½	Easy.
February 13		27½	27¼	Firmer.
February 18		27½	27	Steady.
February 23		27½	27	Easy.

MARKET CABLE SERVICE FROM SINGAPORE.

The following reports of the weekly auctions held at Singapore have been cabled by The Waterhouse Co., Limited:

Date.	Crêpe. Price per lb.	Smoked Sheet. Price per lb.	Tons Sold.	Market.
February 3	39.53	38.68	800	Active, but without change in prices.
February 9	37.83	37.40	572	Active at lower prices.
February 18	38.68	37.83	460	There is more demand.
February 23	39 10	38.25	453	Likely to be quiet.

NEW YORK PARA RUBBER PRICES.

	Upriver fine.	Upriver coarse.	Caucho.	Cametá.	Market.
February 4 *cents*	58	37½ @ 38	36½ @ 37	24½	Dull.
February 13	58	36½ @	36 @	24¼	Quiet.
February 18	57½	36 @	35½ @	24¼	Active.
February 23	57	36 @	35½ @	24¼	Firm.

COMPARATIVE HIGH AND LOW SPOT RUBBER PRICES.

	February. 1918.[1]	1917.	1916.
Plantation:			
First latex crêpe	$0.51 @ 0.57	$0.85 @ 0.91½	$0.76 @ 0.95
Smoked sheet ribbed	.51 @ .57	.85 @ .91½	.76 @ .95
Paras:			
Upriver, fine	.57 @ .60	.79½ @ .86	.73 @ .79
Upriver, coarse	.36 @ 38	.53½ @ .57	.54 @ .60
Islands, fine	.47 @ .48	.77 @	.68 @ .72
Islands, coarse	.24 @ .25	.35½ @ .37	.34 @ .38
Cametá	.24 @ .25	.38 @ .40½	.33½ @ .40

[1]Figured only to February 21.

PLANTATION RUBBER EXPORTS FROM JAVA.

	October.		Ten Months Ending October.	
To—	1916.	1917.	1916.	1917.
HOLLAND:				
Hevea *pounds*	11,200	.....	239,680	.....
GREAT BRITAIN:				
Ficus	180	.....	28,184	12,137
Hevea	620,480	226,240	5,779,200	4,827,200
Ceara	1,263	.....	55,966	31,832
Castilloa	.....	.....	50,450	38,005
Totals	621,923	226,240	5,913,800	4,909,174
UNITED STATES:				
Ficus	.....	.....	33,031	12,085
Hevea	1,460,480	2,618,560	13,285,440	27,684,160
Ceara	.....	.....	12,236	185
Castilloa	.....	.....	.....	11,651
Totals	1,460,480	2,618,560	13,330,707	27,708,081
SINGAPORE:				
Ficus	6,461	2,257	35,495	21,146
Hevea	472,640	504,000	3,783,360	2,894,080
Ceara	17,800	.....	42,544	32,384
Castilloa	.....	.....	4,169	3,955
Totals	496,901	506,257	3,865,568	2,951,565
OTHER COUNTRIES:				
Ficus	.....	.....	4,957	.....
Hevea	49,280	11,220	642,880	56,000
Castilloa	.....	.....	17,536	.....
Totals	49,280	11,200	665,373	56,000
Grand Totals	2,639,784	3,362,257	24,015,128	35,624,820

WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [January 10, 1918]:

The weekly rubber auction opened yesterday with a fairly good demand, at prices approximately the same as last week's, fine pale crêpe selling up to $106 and ribbed smoked sheet up to $105 per picul, these figures being in each case $1 below last week's top prices. Prices eased off somewhat, and the highest paid towards the close of the day was $104 for crêpe and $103 for sheet. On the second day of the sale, the highest paid was $103 for crêpe and $102 for sheet. Brown and dark crêpes met with a good inquiry at prices averaging $2 down. The quantity sold was 540 tons, out of 1,064 tons catalogd.

The following was the course of values:

	In Singapore per Picul.*	Sterling Equivalent per Pound in London.	Equivalent per Pound in Cents.
Sheet, fine ribbed smoked	$98 @ 105	2/ 1⅛ @ 2/2½	41.65 @ 44.63
Sheet, good ribbed smoked	75 @ 97	1/ 7¼ @ 2/0⅞	31.88 @ 41.23
Sheet, plain smoked	.. @ ..	..... @	..... @ .....
Sheet, ribbed unsmoked	73 @ 75	1/ 7⅞ @ 1/8¼	31.03 @ 31.88
Sheet, plain unsmoked	77 @ ..	1/ 8¼ @	32.73 @ .....
Crêpe, fine pale	102 @ 106	2/ 1⅞ @ 2/2¾	43.35 @ 45.05
Crêpe, good pale	87 @ 101	1/10¾ @ 2/1¾	36.98 @ 42.93
Crêpe, fine brown	85 @ 93	1/10⅛ @ 2/0⅛	36.13 @ 39.53
Crêpe, good brown	68 @ 83	1/ 6¾ @ 1/9⅞	28.90 @ 35.27
Crêpe, dark	50 @ 77	1/ 3 @ 1/8¾	21.25 @ 32.73
Crêpe, bark	40 @ 66	1/ 0⅞ @ 1/6⅛	17.00 @ 28.05
Scrap, virgin and pressed	39 @ 51	1/ 0⅝ @ 1/3¼	16.58 @ 21.68
Scrap, loose	.. @ ..	..... @	..... @ .....

*Picul = 133⅓ pounds.
Quoted in S. S. dollars = 2/4 [56.7 cents].

IMPORTS OF RUBBER AND GUTTA AT SINGAPORE.

December 1-27, 1917.

From—	Para Rubber.	Para Rubber for Treatment.	Borneo Rubber.	Gutta Percha.	Gutta Jelutong.
Malay Peninsula—					
Port Swettenham *lbs.*	2,134,400	.....	.....	.....	.....
Penang	1,186,400	.....	.....	.....	.....
Malacca	855,067	612,000	.....	.....	.....
Teluk Anson	842,933	.....	.....	.....	.....
Muar	511,067	.....	.....	.....	.....
Port Dickson	255,600	.....	.....	.....	.....
Kelantan	241,467	34,933	.....	.....	.....
Kuantan	84,400	.....	.....	.....	.....
Rengat	26,267	8,267	.....	.....	.....
Mersing	26,133	.....	.....	.....	.....
Pahang	2,400	.....	.....	.....	.....
Kota Baroe	1,600	.....	.....	.....	.....
Tringganu	933	.....	.....	.....	.....
Pekan	667	.....	.....	.....	.....
Totals	6,169,334	655,000	.....	.....	.....
Borneo—					
Jesselton	137,200	232,267	133	267	.....
Sandakan	59,467	9,867	.....	.....	.....
Bandjermassin	57,867	52,267	7,067	23,067	132,000
Labuan	43,867	10,267	267	1,333	50,933
Sarawak	31,867	47,600	.....	4,267	183,067
Pontianak	27,733	.....	800	5,067	76,400
Kudat	26,133	10,533	.....	.....	.....
Sambas	24,133	.....	.....	.....	.....
Sibu	15,733	.....	533	4,400	115,067
Sampit	4,667	.....	1,467	1,467	347,067
Samarinda	3,200	.....	2,800	9,200	.....
Singkawang	2,533	.....	.....	.....	.....
Kuching	533	.....	.....	2,000	.....
Totals	434,933	362,801	13,067	51,068	904,534
Java—					
Tandjong Priok	200,800	.....	.....	.....	.....
Batavia	129,600	.....	.....	112,000	.....
Soerabaia	94,267	.....	.....	.....	.....
Samarang	1,867	.....	.....	.....	.....
Totals	426,534	.....	.....	112,000	.....
Sumatra—					
Deli	74,933	44,800	.....	.....	.....
Djambi	72,000	.....	.....	.....	.....
Belawan	29,867	.....	.....	.....	.....
Assahan	12,000	.....	.....	.....	.....
Palembang	10,000	.....	1,600	.....	28,000
Siak	6,267	16,800	.....	.....	.....
Bengkalis	2,800	.....	.....	.....	.....
Muntok	800	.....	.....	.....	.....
Passir	533	.....	.....	.....	.....
Siboga	400	.....	.....	.....	.....
Indragiri	.....	.....	.....	267	.....
Totals	209,600	61,600	1,600	267	28,000
Burma—					
Rangoon	11,733	.....	.....	.....	.....
Mergui	4,267	.....	.....	.....	.....
Total	16,000	.....	.....	.....	.....
Siam—					
Bangkok	2,400	.....	.....	533	.....
Patani	133	.....	.....	.....	.....
Totals	2,533	.....	.....	533	.....
Other ports	76,400	.....	6,000	15,467	179,867
Grand Totals	7,335,334	1,079,401	20,667	179,335	1,112,401

HIGHEST AND LOWEST CRUDE RUBBER PRICES PER POUND IN UNITED STATES CURRENCY.

1913	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
First latex	103@111	96@103	88 @ 96	76@88	78 @84	70 @77	66 @70	66 @ 70	52 @64	50 @52	52 @60	53 @55
Smoked sheets	109@113	101@110	97 @102	81@97	81 @83	72 @83	70 @73	70 @ 72	60 @72	59 @61	59 @60	60 @66
Upriver fine	102@110	96@102	88 @ 96	77@88	82 @91	86 @89	83 @92	83 @ 93	77 @88	72 @78	73 @78	71 @74
Upriver coarse	76@ 84	72@ 78	63 @ 72	52@66	55 @61	54 @62	50 @56	50 @ 53	48 @52	46 @49	44 @49	44 @47
1914												
First latex	55@ 61	58@ 64	58 @ 65	64@72	57 @65	54 @57	54 @57	60 @105	52 @56	54 @62	58 @65	73 @87
Smoked sheets	60@ 64	62@ 64	62 @ 65	64@69	57 @69	57 @63	56 @63	56 @ 80	63 @80	63 @66	65 @84	82 @93
Upriver fine	73@ 77	73@ 78	73 @ 74	73@74	69 @74	68 @69	68 @73	75 @115	64 @78	64 @66	63 @71	70 @76
Upriver coarse	44@ 47	44@ 47	43 @ 46	43@47	41 @46	38 @42	38 @42	43 @ 89	43 @55	43 @47	46 @53	51 @60
1915												
First latex	59@ 64	57@ 63	59 @ 60	59@60	59 @61	60 @63	62 @63	59 @ 61	57 @58	61 @63	63 @78	76 @99
Smoked sheets	65@ 66	65@ 66	65 @ 66	59@65	59 @61	61 @63	62 @63	58½ @ 62	58½ @59½	59½ @62	61½ @75	75 @79
Upriver fine	61@ 75	57@ 61	58 @ 60	57@60	59 @61	61 @63	59 @63	56 @ 59	55 @57	55 @57	57 @76	68 @87
Upriver coarse	45@ 58	44@ 48	45 @ 47	46@48	45 @46	45 @47	44 @47	42 @ 44	41 @43	42 @47	44 @62	57 @72
1916												
First latex	70@103	72@ 90	83 @ 88	74@82	61 @74	56 @62	52 @57	53 @ 56	54 @60	56 @60	60 @69	68 @82
Smoked sheets	79@102	75@ 95	87 @ 93	78@86½	64 @77½	58 @65½	55 @65	56 @ 59½	56 @62½	56 @65	62½ @74½	70½ @87
Upriver fine	77@ 99	73@ 80	74 @ 78	72@74	67 @72	62 @68	65 @68	65 @ 68	69 @74	71 @80	79 @83	78 @81
Upriver coarse	60@ 76	52@ 60	56 @ 59	55@57	50 @54	42 @50	41 @42	39 @ 40	41 @44	42 @46	45 @47	47 @56
1917												
First latex	75@ 80	75@ 85	82 @ 90	81@83	83 @83½	65½ @80	65½ @57	66 @ 67	66½ @67½	63½ @65½	57 @61	54 @60
Smoked sheets	75@ 80	75@ 75½	81 @ 90	81@83	84 @84½	65½ @80	65½ @67	65 @ 67	65½ @67	62 @64½	56 @62	52 @61
Upriver fine	75@ 79	77@ 79	76½ @ 80	75@76¼	75 @76	69 @74	68½ @69	68 @ 69	68 @69	63½ @66½	56 @62	54 @61
Upriver coarse	50@ 53	50@ 53¼	52½ @ 54	51@51½	51½ @54	49 @53	48½ @49	48 @ 48½	46 @48½	43½ @46	36 @41½	37 @41

(Compiled by The Rubber Association of America, Inc.)

EXPORTS OF INDIA RUBBER FROM MANAOS DURING NOVEMBER, 1917.

EXPORTERS.	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Totals.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Totals.	Grand Totals.
Stowell & Co. ..... *kilos*	24,160	148	10,130	20,130	54,568	104,954	374	3,432	.....	108,700	163,268
General Rubber Co. of Brazil	166,106	12,521	44,346	139,027	362,000	140,074	19,874	52	.....	160,000	522,000
J. A. Mendes & Co.	102,830	14,772	68,434	91,802	277,838	195,078	7,610	2,250	.....	204,938	482,776
Tancredo, Porto & Co.	72,951	12,383	53,812	36,392	175,538	136,640	12,294	650	416	150,000	325,538
Adelbert H. Alden, Limited	.....	.....	2,040	.....	2,040	98,987	11,220	6	21	110,234	112,274
J. G. Araujo	.....	.....	.....	.....	.....	52,146	4,118	1,370	.....	57,634	57,634
Guilherme Ellery	17,812	1,170	1,428	.....	20,410	.....	.....	.....	.....	.....	20,410
B. Levy & Co.	3,690	230	1,024	.....	4,944	.....	.....	.....	.....	.....	4,944
Totals	387,549	41,224	181,214	287,351	897,338	727,879	55,430	7,760	437	791,506	1,688,844

(Compiled by Stowell & Co.)

EXPORTS OF INDIA RUBBER FROM MANAOS DURING DECEMBER, 1917.

EXPORTERS.	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Totals.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Totals.	Grand Totals.
General Rubber Co. of Brazil. *kilos*	79,657	8,037	47,781	32,525	168,000	152,000	25,000	.....	.....	177,000	345,000
J. A. Mendes & Co.	11,060	35,621	32,139	41,706	120,526	144,991	.....	9	.....	145,000	265,526
Tancredo, Porto & Co.	56,377	3,261	19,453	8,366	87,457	52,103	18,248	86	163	70,600	158,057
J. G. Araujo	100	.....	.....	.....	100	97,580	13,512	4,832	.....	115,924	116,024
Symphronio & Co.	.....	.....	18,676	1,083	19,759	56,275	12,785	1,350	300	70,710	90,469
G. Fradelizi	.....	.....	2,961	5,619	8,580	42,633	3,533	1,500	.....	47,666	56,246
Moraes, Carneiro & Co.	6,138	1,918	1,719	.....	9,775	9,498	267	146	.....	9,911	19,686
H. Balding	.....	.....	.....	.....	.....	17,910	1,320	286	.....	19,516	19,516
Stowell & Co.	.....	.....	.....	.....	.....	13,074	.....	567	810	14,451	14,451
Mesquita & Co.	.....	.....	.....	.....	.....	.....	555	885	.....	1,440	1,440
Totals	153,332	48,837	122,729	89,299	414,197	586,064	75,220	9,661	1,273	672,218	1,086,415
In transit, Iquitos	.....	.....	.....	.....	.....	139,979	73,767	34,495	54,853	303,094	303,094
Totals	153,332	48,837	122,729	89,299	414,197	726,043	148,987	44,156	56,126	975,312	1,389,509

(Compiled by Stowell & Co., Manaos.)

EXPORTS OF INDIA RUBBER FROM MANAOS DURING THE YEAR 1917.

EXPORTERS.	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Totals.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Totals.	Grand Totals.
General Rubber Co. of Brazil. *kilos*	1,083,545	175,091	467,474	1,406,890	3,133,000	1,315,982	266,146	19,621	337,251	1,939,000	5,072,000
Tancredo, Porto & Co.	993,909	254,882	470,538	380,974	2,100,303	761,632	143,198	4,593	123,577	1,033,000	3,133,303
Stowell & Co.	364,265	38,407	219,174	736,046	1,357,892	877,698	60,523	19,890	194,943	1,153,059	2,510,951
J. G. Araujo	364,446	34,537	219,505	14,372	632,860	557,535	60,214	40,140	109,674	767,563	1,400,423
Adelbert H. Alden, Limited	29,983	72,368	114,390	95,350	312,091	696,749	31,084	2,485	224,416	954,734	1,266,825
J. A. Mendes & Co.	116,455	54,428	119,476	190,692	481,051	451,165	25,820	5,679	.....	482,664	963,715
Ohliger & Co.	305,582	19,975	82,007	169,129	576,693	.....	.....	.....	.....	.....	576,693
H. Balding	25,425	294	270	15,710	41,699	125,783	10,242	3,906	58,344	198,275	239,974
G. Fradelizi	12,070	27,448	10,744	102,176	146,438	63,753	20,184	1,500	.....	85,437	231,875
Symphronio & Co.	.....	.....	18,676	1,083	19,759	56,275	12,785	1,350	300	70,710	90,469
Günzburger & Co.	38,146	3,271	9,711	5,876	57,004	.....	.....	.....	.....	.....	57,004
Madeira-Mamoré Railway Co.	839	97	152	48,938	50,026	.....	.....	.....	.....	.....	50,026
H. Semper	14,659	2,513	13,041	4,965	35,178	.....	.....	.....	.....	.....	35,178
J. L. Traqueia	22,596	2,229	8,714	1,350	34,889	.....	.....	.....	.....	.....	34,889
W. Peters	7,670	770	12,105	13,115	33,660	.....	.....	.....	.....	.....	33,660
G. Fradelizi & Co.	.....	22,418	10,768	.....	33,186	.....	.....	.....	.....	.....	33,186
Moraes, Carneiro & Co.	6,138	1,918	1,719	.....	9,775	12,115	1,944	1,160	2,352	17,571	27,346
A. F. de Souza & Co.	14,188	.....	2,818	5,161	22,167	.....	.....	.....	.....	.....	22,167
B. Levy & Co.	3,690	230	1,629	1,500	7,049	11,690	1,279	763	300	14,032	21,081
Guilherme Ellery	17,812	1,170	1,428	.....	20,410	.....	.....	.....	.....	.....	20,410
Th. Levy, Camille & Co.	.....	.....	.....	.....	.....	5,067	466	9,927	1,670	17,130	17,130
Armazens Andresen	17,095	.....	.....	.....	17,095	.....	.....	.....	.....	.....	17,095
Y. Essabbá & Co.	1,920	288	81	9,167	11,456	.....	.....	.....	.....	.....	11,456
Amorim Irmãos	1,478	3,336	5,625	706	11,235	.....	.....	.....	.....	.....	11,235
Semper & Co.	8,160	800	990	.....	9,950	.....	.....	.....	.....	.....	9,950
Mesquita & Co.	160	.....	.....	.....	160	614	2,321	5,139	380	8,454	8,614
H. Pralow	2,082	66	4,028	1,197	7,373	.....	.....	.....	.....	.....	7,373
Oscar Ramos	.....	.....	.....	.....	.....	2,340	261	1,254	305	4,160	4,160
Braga, Vieira & Co.	.....	.....	276	597	873	.....	.....	.....	.....	.....	873
Vianna & Co.	.....	.....	.....	430	430	.....	.....	.....	.....	.....	430
Totals	3,452,313	710,536	1,795,339	3,205,514	9,163,702	4,938,398	636,467	117,412	1,053,512	6,745,789	15,909,491
In transit, Iquitos	570,558	36,046	136,868	425,408	1,168,880	343,754	213,376	87,744	390,373	1,035,247	2,204,127
Totals, 1917	4,622,871	746,582	1,932,207	3,630,922	10,332,582	5,282,152	849,843	205,156	1,443,885	7,781,036	18,113,618
Totals, 1916	4,800,717	783,902	1,706,437	1,980,475	9,271,591	3,567,277	526,548	365,905	2,368,942	6,828,672	16,100,203
Totals, 1915	4,976,216	689,083	555,460	1,548,697	7,778,456	4,612,220	609,831	1,784,076	2,110,048	9,116,175	16,894,631

(Compiled by Stowell & Co., Manaos.)

CRUDE RUBBER ARRIVALS AT THE PORT OF NEW YORK.

The following statistics are not complete, due to Government orders prohibiting access to the record.

[The Figures Indicate Weight in Pounds.]

PARAS.

FEBRUARY 4—By the *Curvello* from Para:

	Fine.	Medium.	Coarse.	Caucho.	Cametá.	Totals.
F. R. Henderson & Co.	132.830	32,570	61,470	63,900	.....	=290,770
Poel & Keily	134,400	.....	109,760	80,640	$1,520	=376,320
H. A. Astlett & Co.	36,960	14,660	.....	.....	.....	= 51,620
Pell & Dumont	700	40	8,040	32,000	.....	= 40,780
General Rubber Co.	.....	.....	20,160	13,440	24,640	= 58,240
*Meyer & Brown	40,500	.....	21,100	36,600	16,000	=114,200

FEBRUARY 4—By the *Sergipe* from Para and Manaos:

F. R. Henderson & Co.	112,000	.....	.....	.....	=112,000
Poel & Kelly	194,600	.....	82,800	64,960	=342,360
H. A. Astlett & Co.	134,400	35,840	134,400	150,080	22,400=477,120
Pell & Dumont	.....	40	180	336	76,000	= 76,556
General Rubber Co.	112,000	6,720	22,400	.....	.....	=141,120
*Meyer & Brown	243,500	.....	11,600	93,300	.....	=348,400

FEBRUARY 15.—By the *Vindeggen* from Para:

F. R. Henderson & Co.	13,300	22,400	24,300	.....	9,600= 69,600
Poel & Kelly	11,200	.....	11,200	67,200	29,120=118,720
H. A. Astlett & Co.	73,920	22,400	69,440	56,000	.....=221,760

By the *Thelma:*

F. R. Henderson & Co.	8,200	9,100	1,200	.....	.....= 18,500

By the *Mormugoa:*

F. R. Henderson & Co.	.....	.....	36,000	.....	.....= 36,000

*Including medium.

ARRIVALS AT THE PORT OF NEW YORK.

PLANTATIONS.

TO NEW YORK.

	Pounds.
JANUARY 19.—By the *City of Madrid*=Colombo:	
J. T. Johnstone & Co.	17,920
F. R. Henderson & Co.	50,600
JANUARY 25.—By the *Rondo*=Batavia:	
J. T. Johnstone & Co.	44,800
General Rubber Co.	229,000
Meyer & Brown	143,400
Fred. Stern & Co.	33,600
Poel & Kelly	100,800
JANUARY 25.—By the *Merauke*=Batavia:	
General Rubber Co.	310,500
J. T. Johnstone & Co.	85,120
Meyer & Brown	107,500
Hagemeyer Trading Co.	98,560
F. R. Henderson & Co.	19,000
JANUARY 28.—By the *Buitensorg*=Batavia:	
General Rubber Co.	351,800
Meyer & Brown	29,100
F. R. Henderson & Co.	72,900
FEBRUARY 7.—By the *City of Shanghai*=Colombo:	
Meyer & Brown	22,400
J. T. Johnstone & Co.	16,720
Fred. Stern & Co.	44,800
Hagemeyer Trading Co.	6,720
Rubber Trading Co.	44,800
FEBRUARY 13.—By the *Capto*=Singapore:	
F. R. Henderson & Co.	387,200
J. T. Johnstone & Co.	257,629
Meyer & Brown	87,400
Rubber Trading Co.	60,480
Poel & Kelly	33,600
FEBRUARY 19.—By the *Vecndyk*=Batavia:	
F. R. Henderson & Co.	55,350
Poel & Kelly	67,200

NO DATES GIVEN.

By the *Monmouthshire*=Far East:	
Fred. Stern & Co.	22,400
By the *Cumaeus*=Far East:	
Fred. Stern & Co.	67,200
By the *Prinses Juliana:*	
Hagemeyer Trading Co.	33,600
By the *Willis*=Batavia:	
Rubber Trading Co.	33,600

AFRICANS.

FEBRUARY 9.—By the *Saxonia*=Liverpool:	
Meyer & Brown	22,400
FEBRUARY 13.—By the *Panonia*=Liverpool:	
Fred. Stern & Co.	22,400
Rubber Trading Co.	22,400

PONTIANAK.

By the *Carmania*=Liverpool:	
H. A. Astlett & Co. (gutta percha)	22,400

GUAYULE.

JANUARY 11.—By the *El Norte*=Galveston:	
Continental Rubber Co. of New York	191,810
FEBRUARY 15.—By the *El Mundo*=Galveston:	
Continental Rubber Co. of New York	95,000
JANUARY 19.—Overland, by rail=Eagle Pass, Texas:	
Continental Rubber Co. of New York	54,000
JANUARY 29.—Overland, by rail=Eagle Pass, Texas:	
Continental Rubber Co. of New York	46,000
FEBRUARY 12.—Overland, by rail—Laredo, Texas:	
Continental Rubber Co. of New York	50,000

CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS REPORTED.

PLANTATIONS.

	Pounds.
DECEMBER 27.—By the *Kienkon Maru*=Far East.	
Rubber Trading Co.	33,600
DECEMBER 31.—By the *Antilochus*=Hongkong:	
Fred. Stern & Co.	13,440
JANUARY 1.—By the *Selandia*=Singapore:	
F. R. Henderson & Co.	217,300
Fred. Stern & Co.	2,605,120
JANUARY 2.—By the *Ecuador*=Colombo:	
Fred. Stern & Co.	67,200
JANUARY 7.—By the *Thordis*=Singapore:	
Fred. Stern & Co.	44,800
JANUARY 8.—By the *Koan Maru*=Far East:	
Poel & Kelly	874,000
JANUARY 8.—By the *Hudson Maru*=Singapore:	
J. T. Johnstone & Co.	138,880
JANUARY 14.—By the *Tenpaisan Maru*=Singapore:	
Fred. Stern & Co.	103,040
JANUARY 26.—By the *Storviken*=Singapore:	
Poel & Kelly	560,000
JANUARY 26.—By the *Tjikembang*=Batavia:	
Poel & Kelly	112,000
JANUARY 28.—By the *Kawi*=Batavia:	
General Rubber Co.	371,300
JANUARY 28.—By the *Colombia*=Colombo:	
Meyer & Brown	4,500
Poel & Kelly	8,960
JANUARY 30.—By the *Grotius*=Batavia:	
General Rubber Co.	110,500
Meyer & Brown	26,900
Poel & Kelly	448,000
JANUARY 30.—By the *Somedono Maru*=Singapore:	
General Rubber Co.	358,400
Meyer & Brown	315,800
Poel & Kelly	560,000
JANUARY 30—By the *Siberia Maru*=Singapore:	
J. T. Johnstone & Co.	6,720
Rubber Trading Co.	6,720
JANUARY 30.—By the *Nippon Maru*=Karatzu:	
F. R. Henderson & Co.	209,680
Meyer & Brown	78,400
FEBRUARY 8.—By the *Mexico Maru*=Singapore:	
J. T. Johnstone & Co.	6,720
FEBRUARY 11.—By the *Hawaii Maru*=Singapore:	
J. T. Johnstone & Co.	2,240
Rubber Trading Co.	4,480
FEBRUARY 14.—By the *Koningin der Nederlanden*=Batavia:	
J. T. Johnstone & Co.	4,480
FEBRUARY 25.—By the *Oranje*=Batavia:	
Poel & Kelly	44,800
FEBRUARY 25.—By the *China*=Far East:	
F. R. Henderson & Co.	132,450
Poel & Kelly	67,200

NO DATES GIVEN.

By the *Keishen Maru*=Far East:	
Fred. Stern & Co.	13,440
By the *Mayachi Maru*=Far East:	
F. R. Henderson & Co.	762,400
Fred. Stern & Co.	87,360
By the *Monteagle*=Far East:	
Fred. Stern & Co.	8,960
By the *Willis*=Batavia:	
Rubber Trading Co.	33,600

CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS STATED BY SHIPS' MANIFESTS.*

SEATTLE AND TACOMA.

PLANTATIONS.

[Figured 135 pounds net to the case.]

TO AKRON, OHIO.

	Pounds.	
JANUARY 26.—By the *Storviken*=Singapore:		
Goodyear Tire & Rubber Co.	41,580	
Goldman, Sachs & Co.	86,535	128,115
†FEBRUARY 2.—By the *Sumatra Maru*=Kobe:		
Goodyear Tire & Rubber Co.		10,800

TO NEW YORK.

JANUARY 26.—By the *Storviken*=Singapore:	
Arthur Meyer & Co.	34,155
Everett, Heaney & Co.	24,300
Arnold & Zeiss	386,100
Fred. Stern & Co.	41,445
L. Littlejohn & Co.	110,430
Robinson & Co.	43,875
Frank B. Ross & Co.	104,760
Hagemeyer Trading Co.	34,560
Meyer & Brown	307,530
Aldens' Successors, Limited	34,965
Rubber Trading Co.	19,845
J. T. Johnstone & Co.	6,750
W. R. Grace & Co.	11,070 1,159,785
JANUARY 31.—By the *Nippon Maru*=Karatzu:	
Robert Badenhop & Co.	77,760
Meyer & Brown	64,530
Hagemeyer Trading Co.	89,100 231,390
¶ FEBRUARY 1.—By the *Umatilla*=Singapore:	
Charles T. Wilson Co., Inc.	258,120
Robert Badenhop & Co.	38,880
J. T. Johnstone & Co.	167,805
L. Littlejohn & Co.	39,960 504,765
† FEBRUARY 2.—By the *Sumatra Maru*=Kobe:	
Arthur Meyer & Co.	4,455

*Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.

†Arrived at Tacoma.

TO SEATTLE, WASH.

JANUARY 26.—By the *Storviken*=Singapore:	
Arnold & Zeiss	133,110
J. T. Johnstone & Co.	13,365
L. Littlejohn & Co.	451,980
Meyer & Brown	20,925
Fred. Stern & Co.	105,300
Aldens' Successors, Limited	236,095
Anglo-South American Bank	34,020
W. R. Grace & Co.	113,400
Goodyear Tire & Rubber Co.	183,870
Balfour, Guthrie & Co.	166,995
Robinson & Co.	13,230
Goldman, Sachs & Co.	59,130 1,531,420
JANUARY 26.—By the *Kashima Maru*=Yokohama:	
Robinson & Co.	4,590
FEBRUARY 1.—By the *Umatilla*=Singapore:	
The B. F. Goodrich Co.	753,435
H. B. M. Consul General	9,720
§ J. T. Johnstone & Co.	79,650 842,805
† FEBRUARY 2.—By the *Sumatra Maru*=Hongkong:	
Anglo-South American Bank, Limited	53,730
Aldens' Successors, Limited	48,060
Winter Sons & Co.	13,095 114,885
FEBRUARY 9.—By the *Oridono Maru*=Kobe:	
J. T. Steeb & Co.	68,580
Mitsui & Co., Limited	174,015 242,595

WATERTOWN, MASS.

JANUARY 31.—By the *Nippon Maru*=Karatzu:	
Hood Rubber Co.	136,080
FEBRUARY 1.—By the *Umatilla*=Singapore:	
Hood Rubber Co.	79,920

TO GUELPH, ONTARIO.

JANUARY 31.—By the *Nippon Maru*=Karatzu:	
F. E. Partridge Rubber Co.	25,245

TO KITCHENER, ONTARIO.

JANUARY 28.—By the *Calcutta Maru*=Yokohama:	
Kaufmann Rubber Co.	24,435

TO TORONTO, CANADA.

JANUARY 28.—By the *Calcutta Maru*=Yokohama:	
Gutta Percha & Rubber Goods Co.	17,010

TO VANCOUVER, BRITISH COLUMBIA.

JANUARY 26.—By the *Storviken*=Singapore:	
Goodyear Tire & Rubber Co.	41,580
L. Littlejohn & Co.	40,500
Edward Maurer & Co.	18,900 100,980
JANUARY 30.—By the *Somedono Maru*=Kobe: (Arrived at Vancouver.)	
Robinson & Co.	19,035
L. Littlejohn & Co.	367,470
Goodyear Tire & Rubber Co.	182,790
Arnold & Zeiss	501,255
Fred. Stern & Co.	75,330
Goldman, Sachs & Co.	25,110
Aldens' Successors, Limited	25,110
Balfour, Guthrie & Co.	41,040
W. R. Grace & Co.	53,730
H. W. Peabody & Co.	42,390
Meyer & Brown	290,790
Charles T. Wilson Co., Inc.	101,655
United States Rubber Co.	359,100
Edward Maurer & Co.	27,945 2,112,750

¶ 329 cases short.

§ 119 cases short.

PONTIANAK.

TO NEW YORK.

JANUARY 26.—By the *Storviken*=Singapore:

United Malaysian Rubber Co.—		
gutta untreated	296,190	
gutta jangker	24,975	321,165

TO SEATTLE, WASH.

JANUARY 26.—By the *Storviken*=Singapore:

L. Littlejohn & Co.—		
gutta jelutong	114,615	
gutta percha	46,035	160,650

SAN FRANCISCO.*

PLANTATIONS.

[*Figured 135 pounds net to the case.*]

	Pounds.	
JANUARY 8.—By the *Hudson Maru*=Kobe:		
The B. F. Goodrich Co.	332,775	
J. T. Johnstone & Co.	48,870	
Rubber Trading Co.	122,445	
Hagemeyer Trading Co.	64,800	
F. R. Henderson & Co.	130,410	
Charles T. Wilson Co., Inc.	31,050	
L. Littlejohn & Co.	147,285	
William H. Stiles	28,485	
Goodyear Tire & Rubber Co.	270	906,390
JANUARY 14.—By the *Korea Maru*=Hongkong:		
Rubber Trading Co.	32,400	
Charles T. Wilson Co., Inc.	108,540	
Meyer & Brown	5,805	
Winter Son & Co.	21,195	
William H. Stiles	39,150	
Goodyear Tire & Rubber Co.	3,240	
M. Phillips	133,110	343,440
JANUARY 15.—By the *Rindjani*=Soerabaia:		
The B. F. Goodrich Co.	47,385	
Stein, Hirsch & Co.	120,285	
Meyer & Brown	78,570	
Mitsui & Co.	1,215	
J. T. Johnstone & Co.	54,000	
W. Hammesfahr	15,255	
Rubber Trading Co.	62,100	
William H. Stiles	43,065	
Goodyear Tire & Rubber Co.	37,800	459,675
JANUARY 23.—By the *Colusa*=Colombo:		
H. W. Peabody & Co.	54,000	
Goodyear Tire & Rubber Co. (From Manila.)	953,370	
Wells, Fargo & Co.	4,185	1,011,555
JANUARY 26.—By the *Tjikembang*=Batavia:		
Savage Tire Co.	11,745	
H. B. M. Consul General	307,800	
J. D. Spreckels Bros. & Co.	10,395	
W. R. Grace & Co.	55,890	
Arnold & Zeiss	8,235	
Robinson & Co.	135	
Edward Maurer & Co.	135	
The B. F. Goodrich Co.	224,100	618,435
† JANUARY 28.—By the *Colombia*=Hongkong.		
Aldens' Successors, Limited	167,265	
Arnold & Zeiss	10,260	
Meyer & Brown	11,070	
Robinson & Co.	24,435	
Goodyear Tire & Rubber Co.	61,560	
Arthur Meyer & Co.	31,725	
Goldman, Sacks & Co.	12,285	
L. Littlejohn & Co.	14,985	
Rubber Trading Co.	11,340	
H. B. M. Consul General	21,195	
Fred. Stern & Co.	7,290	373,410
JANUARY 28.—By the *Kawi*=Batavia:		
Hood Rubber Co.	31,590	
H. M. B. Consul General	54,000	
Savage Tire Co.	5,400	
W. Hammesfahr & Co.	10,800	
General Rubber Co.	278,910	
Von Nordheim & Co.	43,470	
Firestone Tire & Rubber Co.	67,365	
Goodyear Tire & Rubber Co.	58,995	
Charles T. Wilson Co., Inc.	45,360	
Robert Badenhop & Co.	30,780	
L. Littlejohn & Co.	98,280	724,950
JANUARY 30.—By the *Siberia Maru*=Hongkong:		
J. T. Johnstone & Co.	146,340	
W. R. Grace & Co.	119,880	
L. Littlejohn & Co.	21,060	
Robinson & Co.	11,475	
East Asiatic Co.	12,690	
Fred. Stern & Co.	15,120	
The B. F. Goodrich Co.	306,855	
Goodyear Tire & Rubber Co.	16,065	649,485

*Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.

† 702 cases shortshipped.

	Pounds.	
JANUARY 30.—By the *Grotius*=Soerabaia:		
Edward Maurer & Co.	51,435	
Meyer & Brown	29,430	
Mitsui & Co., Limited	42,930	
Goodyear Tire & Rubber Co.	121,635	
Harrison & Crosfield	147,825	
H. B. M. Consul General	199,125	
Robinson & Co.	3,780	
G. Amsinck & Co.	240,435	
General Rubber Co.	65,745	
Von Nordheim & Co.	134,730	
Arnold & Zeiss	32,400	
L. Littlejohn & Co.	48,465	
Firestone Tire & Rubber Co.	135,405	1,253,340
(Shortshipped, *Rembrandt.*)		
G. Amsinck & Co.		5,400
FEBRUARY 7.—By the *Vondel*=Soerabaia:		
Aldens' Successors, Limited	5,805	
H. B. M. Consul General	18,495	
A. Stein Hirsch	96,390	
Rubber Association of America	163,890	
Charles T. Wilson Co., Inc.	61,695	
L. Littlejohn & Co.	43,605	
J. T. Johnstone & Co.	19,845	
Mitsui & Co., Limited	51,570	
McDonald & Co.	33,075	
G. Amsinck & Co.	44,550	
Rubber Trading Co.	31,590	
William H. Stiles	31,995	
Goodyear Tire & Rubber Co.	101,790	704,295

CUSTOM HOUSE STATISTICS.

PORT OF BOSTON, MASS.—DECEMBER, 1917.

IMPORTS:	POUNDS.	VALUE.
India rubber	12,650	$5,204
EXPORTS:		
India rubber boots.....*pairs*	17,563	$59,339
India rubber shoes.....*pairs*	20,202	10,324
Automobile tires	.....	19,547
Belting, hose and packing	.....	1,702
All other manufactures of india rubber	.....	15,216
Total	.....	$106,128

PORT OF CLEVELAND, OHIO—JANUARY, 1918.

IMPORTS:	POUNDS.	VALUE.
India rubber	4,480	$2,335

PORT OF CHICAGO, ILL.—JANUARY, 1918.

IMPORTS:	POUNDS.	VALUE.
Rubber scrap	18,795	$1,574

PORT OF THE DISTRICT OF MASSACHUSETTS—JANUARY, 1918.

EXPORTS:	POUNDS.	VALUE.
Scrap and old rubber:		
To—		
France	8,041	$4,452
Belting:		
To—		
Canada	.....	$473
Cuba	.....	1,713
Total	.....	$2,186
Rubber boots—*pairs:*		
To—		
England	27,204	$122,400
Canada	747	1,924
Newfoundland	1,885	5,013
Portuguese Africa	1	2
Miquelon and St. Pierre	72	188
Totals	29,909	$129,527
Rubber shoes—*pairs:*		
To—		
Miquelon and St. Pierre	252	$167
England	12,000	5,400
Canada	78	48
Newfoundland	1,146	584
Cuba	864	707
Totals	14,340	$6,906
Tires:		
To—		
Canada	.....	$74
Argentina	.....	325
Total	.....	$399
Druggists' sundries:		
To—		
England	.....	$890
Canada	.....	15
Newfoundland	.....	101
Cuba	.....	1,805
Total	.....	$2,811
Other manufactures of india rubber:		
To—		
Canada	.....	$876
France	.....	22,871
England	.....	1,871
Newfoundland	.....	1,354
Cuba	.....	2,044
Costa Rica	.....	23
Portuguese Africa	.....	1
Total	.....	$29,040

PORT OF THE DISTRICT OF MICHIGAN, MICH.—DECEMBER, 1917.

IMPORTS:	POUNDS.	VALUE.
India rubber	299,244	$178,227
Manufactures of india rubber	.....	44
Total	.....	$178,271
EXPORTS:		
Rubber scrap	118,732	$17,296
India rubber boots.....*pairs*	4,491	13,002
India rubber shoes.....*pairs*	667	1,070
Automobile tires	.....	13,443
Other rubber tires	.....	46
Belting, hose and packing	.....	4,991
All other manufactures of india rubber	.....	32,693
Total	.....	$82,541

PORT OF NEW ORLEANS, LA.—JANUARY, 1918.

IMPORTS:	POUNDS.	VALUE.
India rubber	1,700	$511

PORT OF SAN FRANCISCO, CAL.—DECEMBER, 1917.

IMPORTS:	POUNDS.	VALUE.
India rubber	8,187,405	$5,233,014
Gutta jelutong (Pontianak)	2,645	337
Manufactures of india rubber	.....	167
Total	.....	$5,233,518
EXPORTS:		
India rubber boots.....*pairs*	43	$131
India rubber shoes.....*pairs*	4,582	6,006
Automobile tires	.....	282,312
Other rubber tires	.....	23,599
Belting, hose, etc.	.....	46,174
Druggists' sundries	.....	3,855
All other manufactures of india rubber	.....	39,809
Total	.....	$401,886

EXPORTS:	POUNDS.	VALUE.
PORT OF PHILADELPHIA, PA.—JANUARY, 1918.		
Belting, hose and packing	.....	$539
All other manufactures of india rubber	.....	746
Total	.....	$1,285

STATISTICS OF CRUDE AND MANUFACTURED RUBBER AT THE PORT OF NEW YORK.

IMPORTS.

UNMANUFACTURED—*free:*	December, 1917.* POUNDS.	VALUE.
Crude rubber:		
From—		
France	46,259	$21,049
Portugal	15,843	11,665
England	772,120	446,837
British Honduras	545	164
Costa Rica	3,195	1,821
Guatemala	7,815	1,593
Honduras	5,315	2,277
Nicaragua	11,706	4,315
Panama	9,205	2,293
Mexico	51,873	26,252
Argentina	540,180	202,336
Brazil	3,675,945	1,339,659
Colombia	104,829	41,198
Ecuador	120,444	63,354
Paraguay	7,938	3,105
Peru	21,798	11,111
Venezuela	9,222	5,336
British India	2,183	1,351
Straits Settlements	700,876	397,949
Other British East Indies	1,320,312	691,967
Dutch East Indies	656,325	378,718
Totals	8,083,928	$3,654,350
Gutta percha:		
From—		
Colombia	1,104	$207
Philippine Islands	13,057	1,781
Totals	14,161	$1,988
Gutta jelutong:		
From—		
Straits Settlements	367,941	$14,670
Balata:		
From—		
Panama	27,544	$12,428
Colombia	65,871	29,011
British Guiana	6,807	5,010
Dutch Guiana	6,029	4,737
Venezuela	21,273	13,436
Totals	127,524	$64,622

UNMANUFACTURED—*free:*	December, 1917. Pounds.	Value.
Rubber scrap:		
From—		
France	90,273	$5,355
Italy	37,444	9,876
England	336,858	25,562
Jamaica	1,975	132
Cuba	30,295	1,689
Argentina	143,764	6,866
Brazil	66,138	3,340
Colombia	2,700	95
Venezuela	3,124	276
British West Africa	1,287	82
Totals	713,858	$53,273
Totals, unmanufactured	9,307,412	$3,788,903
MANUFACTURED—*dutiable:*		
Gutta percha:		
From—		
Scotland	.....	$820
India rubber:		
From—		
France	.....	$584
Spain	.....	709
England	.....	24,145
Canada	.....	5,958
Japan	.....	1,207
Total	.....	$32,603
Total, manufactured	.....	$33,423

EXPORTS OF DOMESTIC MERCHANDISE.

MANUFACTURED—	December, 1917. Pounds.	Value.
Automobile tires:		
To—		
England	.....	$7,488
France	.....	92,465
Spain	.....	5,958
British India	.....	52,958
Argentina	.....	173,512
Cuba	.....	109,552
Brazil	.....	30,584
Chile	.....	80,757
Peru	.....	11,761
Venezuela	.....	11,279
Mexico	.....	26,666
Uruguay	.....	3,683
Panama	.....	12,964
British South Africa	.....	68,047
British West Africa	.....	8,317
Australia	.....	1,915
New Zealand	.....	2,011
Other countries	.....	66,344
Total	.....	$766,261
All other tires	.....	$155,833
Reclaimed rubber	114,300	27,654
Scrap rubber	12,820	1,300
Belting	.....	236,738
Rubber boots *pairs*	227,322	696,457
Rubber shoes *pairs*	41,287	26,425
Druggists' sundries	.....	51,516
Other rubber manufactures	.....	515,807
Total	.....	$2,477,991

EXPORTS OF FOREIGN MERCHANDISE.

UNMANUFACTURED—	December, 1917. Pounds.	Value.
India rubber	46,652	$30,422
Gutta percha	22,400	6,720
Balata	53,412	30,772
Totals	122,464	$67,914

RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

UNMANUFACTURED—*free:*	November, 1917. Pounds.	Value.
India rubber:		
From—		
France	2,307	$2,014
Portugal	34,833	20,900
United Kingdom	1,185,348	599,796
Central America	64,301	24,780
Mexico	71,979	24,930
Brazil	1,680,088	590,726
Peru	174,393	81,810
Other South America	218,835	95,794
British East Indies	28,316,106	15,353,056
Dutch East Indies	3,190,475	1,681,688
Other countries	174,108	100,031
Totals	35,112,773	$18,575,525
Balata	150,148	63,242
Guayule gum	805,612	238,304

UNMANUFACTURED—	November, 1917. Pounds.	Value.
Gutta jelutong	690,784	45,331
Gutta percha	22,560	3,086
Totals	36,781,877	$18,925,488
Rubber scrap	1,865,262	$126,708
Totals, unmanufactured	38,647,139	$19,052,196
Chicle *dutiable*	460,078	$281,264
MANUFACTURED—*dutiable:*		
Manufactures of india rubber and gutta percha	.....	$52,696
India rubber substitutes	.....	1,360
Total, manufactured	.....	$54,056

EXPORTS OF DOMESTIC MERCHANDISE.

MANUFACTURED—	November, 1917. Pounds.	Value.
Automobile tires:		
To—		
France	.....	$58,876
United Kingdom	.....	112,338
Canada	.....	35,884
Mexico	.....	65,788
Cuba	.....	162,337
Argentina	.....	117,772
Brazil	.....	30,307
British India	.....	17,179
Dutch East Indies	.....	78,868
Australia	.....	40,923
New Zealand	.....	65,990
Philippine Islands	.....	63,616
British South Africa	.....	25,478
Other countries	.....	130,849
Total	.....	$1,006,205
All other tires	.....	$174,085
Reclaimed rubber	153,388	28,159
Scrap and old rubber	131,312	22,844
Belting, hose and packing	.....	695,519
Rubber boots *pairs*	270,116	821,592
Rubber shoes *pairs*	176,825	95,515
Druggists' sundries	.....	120,082
Other rubber manufactures	.....	563,327
Total, manufactured	.....	$3,527,328
Fountain pens *number*	15,880	$17,934

EXPORTS OF FOREIGN MERCHANDISE.

UNMANUFACTURED—	November, 1917. Pounds.	Value.
Balata	.....	.....
Gutta jelutong	.....	.....
Gutta percha	32,590	$8,148
India rubber	291,579	148,560
Rubber scrap and refuse	.....	.....
Totals, unmanufactured	324,169	$156,708
MANUFACTURED—		
Gutta percha	.....	$3,252
India rubber	.....	2,138
Total, manufactured	.....	$5,390

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

MANUFACTURED—	November, 1917. Pounds.	Value.
To—		
Alaska:		
Belting, hose and packing	.....	$2,501
Boots and shoes *pairs*	3,596	7,771
Other rubber goods	.....	5,836
Total	.....	$16,108
To—		
Hawaii:		
Belting, hose and packing	.....	$18,095
Automobile tires	.....	162,359
Other tires	.....	6,219
Other rubber goods	.....	27,344
Total	.....	$214,017
To—		
Philippine Islands:		
Belting, hose and packing	.....	$21,311
Boots and shoes *pairs*	4,548	4,154
Tires	.....	77,205
Other rubber goods	.....	10,025
Total	.....	$112,695
To—		
Porto Rico:		
Belting, hose and packing	.....	$7,414
Automobile tires	.....	102,368
Other tires	.....	865
Other rubber goods	.....	10,388
Total	.....	$121,035

RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

UNMANUFACTURED—*free:*	Year Ended December 31, 1917. Pounds.	Value.
India rubber:		
From—		
France	656,076	$327,998
Netherlands	65,484	37,866
Portugal	3,740,415	1,476,891
United Kingdom	71,466,789	48,517,761
Central America	1,253,354	555,707
Mexico	1,263,559	520,512
Brazil	56,982,470	23,678,755
Peru	3,991,477	1,840,514
Other South America	4,023,489	1,792,515
British East Indies	195,325,015	113,480,370
Dutch East Indies	59,689,895	36,671,226
Other countries	7,180,255	4,320,789
Totals	405,638,278	$233,220,904
Balata	3,193,387	$1,607,343
Guayule gum	4,852,531	1,487,978
Gutta jelutong. *free*	1,472,330	76,773
Gutta jelutong. *dutiable*	23,302,537	1,068,175
Gutta percha	1,476,426	289,802
Totals	439,935,489	$237,750,975
Rubber scrap	22,357,173	$1,717,861
Totals, unmanufactured	462,292,662	$239,468,836
MANUFACTURED—*dutiable:*		
Manufactures of india rubber and gutta percha	.....	$765,975
India rubber substitutes	.....	44,084

RUBBER STATISTICS FOR THE DOMINION OF CANADA.

[For the fiscal year ended March 31, 1917.]

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

UNMANUFACTURED—*free:*	Twelve Months Ended March 31, 1917. Pounds.	Value.
Rubber and gutta percha, crude caoutchouc or india rubber:		
From—		
United Kingdom	4,988,050	$3,286,816
British East Indies	18,079	11,065
Straits Settlements	651,847	418,355
France	95	38
United States	5,099,897	3,028,623
Totals	10,757,968	$6,744,897
Rubber, recovered:		
From—		
United Kingdom	148,406	$20,499
British South Africa	11,436	2,783
United States	4,723,323	690,605
Totals	4,883,165	$713,887
Hard rubber in sheets and rods:		
From—		
United Kingdom	1,612	$922
United States	83,510	55,349
Totals	85,122	$56,271
Rubber substitute:		
From—		
United States	631,509	$59,442
Rubber, powdered, and rubber or gutta percha waste:		
From—		
United Kingdom	390,524	$19,808
Bermuda	1,100	11
British West Indies	2,853	114
Newfoundland	65,905	4,882
United States	1,095,442	81,493
Totals	1,555,824	$106,308
Rubber thread, not covered:		
From—		
United States	45,659	$68,595
Totals, unmanufactured	17,959,247	$7,749,400
Chicle:		
From—		
British Honduras	2,930,127	$1,065,953
Mexico	1,379,634	528,632
United States	1,980,291	685,753
Totals	6,290,052	$2,280,338

MANUFACTURED—*dutiable:*	General Tariff. VALUE.	Preferential Tariff. VALUE.
Boots and shoes:		
From—		
United Kingdom	.....	$10,579
United States	$186,862	.....
Totals	$186,862	$10,579
Belting:		
From—		
United Kingdom	.....	$282
United States	$73,959	.....
Totals	$73,959	$282
Waterproof clothing:		
From—		
United Kingdom	$658	$432,624
Japan	202	.....
United States	293,533	.....
Totals	$294,393	$432,624
Hose, lined with rubber:		
From—		
United Kingdom	.....	$669
United States	$105,452	.....
Totals	$105,452	$669
Mats and matting:		
From—		
United Kingdom	$4	$87
United States	3,380	.....
Totals	$3,384	$87
Packing:		
From—		
United Kingdom	$491	$919
Sweden	4	.....
United States	91,590	.....
Totals	$92,085	$919
Tires of rubber for all vehicles:		
From—		
United Kingdom	$22,546	$27,565
France	5,818	.....
Hawaii	87	.....
Japan	95	.....
United States	1,217,932	.....
Totals	$1,246,478	$27,565
Rubber cement and all manufactures of india rubber—N. O. P.:		
From—		
United Kingdom	$3,491	$209,522
France	470	.....
Japan	2,652	.....
Sweden	12	.....
United States	773,048	.....
Totals	$779,673	$209,522
Hard rubber, unfinished, in tubes, for fountain pens:		
From—		
United States	$7,501	.....
Elastic, webbing, over one inch wide:		
From—		
United Kingdom	$59	$12,064
France	90	.....
United States	284,898	.....
Totals	$285,047	$12,064
Totals, manufactured	$3,074,834	$694,311

EXPORTS OF DOMESTIC AND FOREIGN MERCHANDISE.

MANUFACTURED—	Twelve Months Ended March 31, 1917. Produce of Canada. VALUE.	Reexports of Foreign Goods. VALUE.
Belting:		
To—		
Fiji Islands	$146	.....
Newfoundland	3,624	.....
United States	1,109	$11
Totals	$4,879	$11
Hose:		
To—		
United Kingdom	$154,054	.....
Australia	403	.....
British South Africa	4,602	.....
British Guiana	137	.....
British West Indies	358	.....
Newfoundland	5,781	.....
New Zealand	2,729	.....
Argentina	2,206	.....
Brazil	970	.....
Cuba	892	.....
Denmark	9,989	.....
Dutch East Indies	6,421	.....
Holland	19,503	.....
Miquelon and St. Pierre	49	.....
Norway	23,908	.....
United States	1,421	$529
Totals	$233,423	$529
Boots and shoes:		
To—		
United Kingdom	$1,111,026	.....
Australia	39,402	.....
Bermuda	1,472	.....
British Guiana	3,410	.....
British West Indies	6,520	.....
Newfoundland	92,538	$116
New Zealand	45,185	.....
Alaska	.....	79
Dutch Guiana	213	.....
France	13	.....
Japan	6	.....
Miquelon and St. Pierre	600	.....
Norway	11,472	.....
United States	5,868	617
Totals	$1,317,725	$812
Waterproof clothing:		
To—		
United Kingdom	$1,909	.....
Newfoundland	578	.....
Miquelon and St. Pierre	12	.....
United States	5	$472
Totals	$2,504	$472
Tires:		
To—		
United Kingdom	$453,771	$354
Australia	6,052	.....
Bermuda	599	.....
British Guiana	833	.....
British West Indies	7,086	.....
Fiji Islands	141	.....
Newfoundland	5,483	.....
New Zealand	121,497	.....
Alaska	3	.....
Argentina	1,041	.....
Brazil	2,548	.....
French Africa	297	.....
French West Indies	2,367	.....
Japan	57	52
United States	124,993	46,085
Totals	$726,768	$46,491
Waste:		
To—		
United Kingdom	$20,832	.....
United States	208,777	.....
Total	$229,609	.....
All other—N. O. P.:		
To—		
United Kingdom	$125,326	$500
Australia	3,101	.....
Bermuda	412	.....
British South Africa	1,144	.....
British Guiana	553	.....
British India	899	.....
British West Indies	612	.....
Newfoundland	3,482	.....
New Zealand	2,223	.....
Alaska	.....	26
Brazil	225	.....
China	27	.....
France	2,474	$16
Japan	75	.....
Miquelon and St. Pierre	157	.....
United States	10,888	14,693
Totals	$151,598	$15,735
Totals, manufactured	$2,666,506	$64,050

RUBBER STATISTICS FOR THE DOMINION OF CANADA.

The import and export figures by countries usually published in this table are withheld by the Canadian Government.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

UNMANUFACTURED—*free:*	November, 1917. POUNDS.	VALUE.
Rubber and gutta percha, crude caoutchouc or india rubber	1,058,721	$577,473
Rubber, recovered	369,745	61,828
Hard rubber, in sheets and rods	7,499	5,846
Rubber substitute	49,746	4,038
Rubber, powdered, and rubber or gutta percha waste	192,846	14,372
Rubber thread, not covered	3,522	5,204
Totals	1,682,079	$668,761
Chicle	151,813	$58,895

MANUFACTURED—*dutiable:*	General Tariff. VALUE.	Preferential Tariff. VALUE.
Boots and shoes	$28,082	$1,361
Belting	12,171	139
Waterproof clothing	6,134	14,654
Hose, lined with rubber	9,556	.....
Mats and matting	122	.....
Packing	4,848	21
Tires of rubber for all vehicles	46,672	1,759
Rubber cement and all manufactures of india rubber and gutta percha—N. O. P.	71,874	9,627
Hard rubber, unfinished, in tubes for fountain pens	1,298	.....
Webbing, over one inch wide	15,621	704
Totals	$196,378	$28,265

EXPORTS OF DOMESTIC AND FOREIGN MERCHANDISE.

MANUFACTURED—	November, 1917. Produce of Canada. VALUE.	Reexports of Foreign Goods. VALUE.
Belting	$312	$160
Hose	4,004	.....
Boots and shoes	322,484	1,634
Clothing	1,588	158
Tires	114,007	4,152
Waste	7,805	.....
All other N. O. P.	5,289	58,580
Totals	$455,489	$64,684
Chicle	$200,136	.....

LONDON AND LIVERPOOL RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

UNMANUFACTURED—	December, 1917. POUNDS.	£.
Crude rubber:		
At—		
London	1,477,700	177,735
Liverpool	4,763,000	618,918
Totals	6,240,700	796,653
Waste and reclaimed rubber:		
At—		
London	3,400	40
Liverpool	104,700	992
Totals	108,100	1,032

EXPORTS.

Waste and reclaimed rubber:		
From—		
London	198,900	3,088
Liverpool	107,400	1,587
Totals	306,300	4,675

REEXPORTS.

Crude rubber:		
From—		
London	2,596,800	320,857
Liverpool	691,000	89,917
Totals	3,287,800	410,774
Waste and reclaimed rubber:		
From—		
Liverpool	22,500	945

RUBBER STATISTICS FOR ITALY.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	Ten Months Ending October, 1917.	
UNMANUFACTURED—	POUNDS.	LIRE.
India rubber and gutta percha —raw and reclaimed:		
From—		
Great Britain	2,349,160	.....
Straits Settlements	1,323,520	.....
French West African colonies	418,440	.....
Belgian Congo	268,180	.....
Brazil	4,066,040	.....
Other countries	3,497,120	.....
Totals	11,922,460	48,773,700
Rubber scrap	1,933,580	878,900
MANUFACTURED—		
India rubber and gutta percha —threads:		
From—		
Great Britain	22,220	.....
United States	56,760	.....
Other countries	2,640	.....
Totals	81,620	742,000
India rubber and gutta percha —sheets:		
Cut sheets	3,740	29,750
Elastic fabric	4,400	10,000
Other kinds, including hard rubber	31,900	126,150
India rubber and gutta percha —tubes:		
From cut sheets	220	1,850
Elastic fabric	12,540	39,900
Other forms	1,320	4,800
Belting	97,020	352,800
Rubber fabrics—pieces:		
For carding combs	88,880	414,100
Other forms:		
From—		
Great Britain	10,780	.....
Other countries	25,080	.....
Totals	35,860	211,900
Boots and shoes—*pairs:*		
From—		
France	6,046	.....
United States	23,499	.....
Other countries	172	.....
Totals	29,717	193,160
Elastic webbing:		
From—		
France	38,060	.....
Great Britain	11,880	.....
Other countries	5,720	.....
Totals	55,660	430,100
Clothing and articles for travel	1,540	16,800
Manufactures of india rubber and gutta percha—n. e. s.:		
From cut sheets	11,880	118,800

	Ten Months Ending October, 1917.	
MANUFACTURED—	POUNDS.	LIRE.
Elastic fabric:		
From—		
France	56,980	.....
Great Britain	159,720	.....
Other countries	17,380	.....
Totals	234,080	1,010,800
Tires and tubes:		
From—		
France	779,460	.....
Great Britain	425,260	.....
Other countries	23,760	.....
Totals	1,228,480	8,711,040
Other rubber manufactures:		
From—		
France	178,860	.....
Great Britain	384,780	.....
United States	476,960	.....
Other countries	1,100	.....
Totals	1,041,700	3,788,000
Total Imports	.....	65,854,550

EXPORTS OF CRUDE AND MANUFACTURED RUBBER.

India rubber and gutta percha —raw and reclaimed:		
To—		
Spain	340,560	.....
United States	554,400	.....
Totals	894,960	1,220,400
MANUFACTURED—		
India rubber and gutta percha —threads:		
To—		
France	17,820	.....
Great Britain	7,040	.....
Spain	12,760	.....
Switzerland	4,620	.....
Argentina	3,740	.....
Other countries	1,980	.....
Totals	47,960	414,200
India rubber and gutta percha —sheets:		
Cut sheets	1,320	10,200
Elastic fabric	5,500	15,000
Insulated wire	440	700
Other kinds, including hard rubber	17,820	68,850
India rubber and gutta percha —tubes:		
From cut sheets	1,320	11,400
Elastic fabric	55,220	163,150
Other forms	59,400	202,500
Belting	2,640	8,640
Rubbered fabric—pieces	38,720	176,000
Elastic webbing:		
To—		
France	5,060	.....
Greece	30,580	.....
Spain	20,020	.....
Switzerland	73,920	.....
Egypt	12,540	.....
Argentina	55,880	.....
Brazil	126,940	.....

	Ten Months Ending October, 1917.	
MANUFACTURED—	POUNDS.	LIRE.
Chile	12,100	.....
Cuba	13,640	.....
Other countries	34,980	.....
Totals	385,660	2,804,800
Clothing and articles for travel	7,260	75,900
Manufactures of india rubber and gutta percha—n. e. s.:		
From cut sheets:		
To—		
Great Britain	660	.....
Spain	1,100	.....
Argentina	7,480	.....
Uruguay	1,980	.....
Other countries	1,100	.....
Totals	12,320	112,000
Elastic fabric	24,640	100,800
Tires and tubes:		
To—		
France	689,040	.....
Great Britain	1,547,480	.....
Switzerland	2,420	.....
India and Ceylon	369,380	.....
Australia	19,580	.....
Argentina	211,420	.....
Brazil	239,580	.....
Other countries	659,780	.....
Totals	3,738,680	17,588,790
Other rubber manufactures:		
To—		
France	42,680	.....
Great Britain	36,740	.....
Spain	6,160	.....
Switzerland	36,080	.....
Egypt	3,300	.....
Argentina	86,240	.....
Brazil	33,880	.....
Uruguay	15,620	.....
Other countries	31,240	.....
Totals	291,940	1,194,300
Total Exports	.....	24,167,630

The nominal value of a lira is $0.193.

THE RUBBER MARKET AT BORDEAUX.

The amounts imported at Bordeaux during the year just ended totaled 2,939,970 kilos (2.2 pounds), against 1,990,660 kilos in 1916, and comprised the following sorts:

	1917.	1916.
Congo *kilos*	1,947,375	1,043,550
Conakry, Rio Nunez, Bissao	351,310	436,750
Sudan	42,250	116,600
Casamance	57,050	61,150
Ivory Coast	125,030	125,750
Cameroon	113,170	.....
Gabon	129,050	.....
Madagascar	1,185	8,400
Manicoba	35,200	69,100
Balata	138,350	128,500
Indo China	.....	860
Totals	2,939,970	1,990,660

These figures cover only the direct imports sold in the Bordeaux market. Stock on hand December 31, 1917, amounted to 420 tons.

THE MARKET FOR COTTON AND OTHER FABRICS.

Copyright, 1918.

NEW YORK.

FEBRUARY as a rule is a dull month in the American cotton market as the conditions ruling the old crop have been fully considered and traders are watching reports relating to the new crop prospects. The market has exhibited some nervousness, due to usual mid-season rumors, but nothing of importance has actually happened. Prices show an advance during the month as middling spot cotton was selling at 31.20 cents on February 1, and on February 25 the quotation was 32.15 cents.

EGYPTIAN COTTON. From a report, mailed January 7, it appears that the Alexandria market has shown marked weakness due to the heavy receipts as against exports which are far below normal resulting in a market over-burdened with surplus cotton. Furthermore, commercial houses finding plenty of ways to hedge sales to spinners outside of the future market are taking advantage of their opportunities in consequence and are selling out their holdings of January futures which they were holding as hedges. This action, coming at the time when the demand for futures is slight, has a very depressing effect which has caused much liquidation of speculative accounts.

SEA ISLAND COTTON. The total receipts of Sea Island cotton at southern ports from August 1, 1917, to February 1, 1918, was 47,813 bales, compared with 73,517 bales for the same period last year. Shipments were 30,606 bales compared with 64,927 bales last year leaving a stock of 17,207 bales on February 1, compared with 8,590 bales, the stock a year ago. Crop in sight at all ports on February 1, was 46,599 bales, compared with 70,775 bales last year.

MECHANICAL DUCK. The urgent needs of the Government have resulted in more heavy duck looms being changed over to fill war orders. This expedient, together with delays incidental to the freight situation, has seriously interfered with the production and delivery of mechanical duck during the past month.

RAINCOAT FABRICS. The Government has finally announced the specifications for the slickers which are to be used by the

army: 64 by 60 5.35 cloth is to be used for the face and a 64 by 60 3.25 cloth for the lining. Both cloths to be dyed with olive drab, commercially fast sulphur dye and finished 36 inches wide. The rubber compound is to contain not less than 30 per cent of the best Upriver fine Para rubber or Ceylon rubber, six per cent of the best light-colored reclaimed rubber of a quality equal to Tacoma or Puritan, three per cent brown corn oil substitute, seven per cent mineral rubber, 10 per cent litharge, 12 per cent zinc oxide, 30½ per cent whiting and 1½ per cent sulphur. The cement to be used contains 25 per cent of Upriver fine Para rubber, 25 per cent of fine Ceylon rubber, 20 per cent litharge, 29 per cent whiting and one per cent rosin; the cement to be well ground, thoroughly mixed and used according to government standard.

SHEETINGS, OSNABURGS AND DRILLS. The mills all report curtailed production for the past month due to fuel shortage, enforced shut-downs and holidays, that together with shipping difficulties has resulted in a serious delay in making deliveries. Government orders continue to have precedence in the market while civilian business must wait.

TIRE FABRICS. Conditions have not materially changed from last month with the exception, however, that more inquiries were received. The temporary interruption of industrial activity curtailed the production of tire fabrics and at the same time lessened the demand, thus equalizing market conditions and prices.

NEW YORK QUOTATIONS.

FEBRUARY 25, 1918.

Prices subject to change without notice.

AIRPLANE AND BALLOON FABRICS:			
Wamsutta, S. A. I. L. No. 1, 40-inch	*yard*	$0.57	@
No. 4, 38½-inch		.50	@
for gas masks		.45	@
BURLAPS:			
32— 7½-ounce	*100 yards*	None	
40— 7½-ounce		17.00	@
40— 8-ounce		17.50	@
40—10-ounce		21.00	@
40—10½-ounce		21.75	@
45— 7½-ounce		18.95	@
45— 8-ounce		19.20	@
45— 9½-ounce		24.75	@
48—10-ounce		25.00	@
DRILLS:			
38-inch 2.00-yard	*yard*	*.27	@
40-inch 2.47-yard		*.22½	@
52-inch 1.90-yard		*.29	@
52-inch 1.95-yard		*.28½	@
60-inch 1.52-yard		*.37	@
DUCK:			
CARRIAGE CLOTH:			
38-inch 2.00-yard enameling duck	*yard*	*.27	@
38-inch 1.74-yard		*.31	@
72-inch 16.66-ounce		*.59	@
72-inch 17-21-ounce		*.64	@
MECHANICAL:			
Hose	*pound*	.65	@ .70
Belting		.65	@ .70
HOLLANDS, 40-INCH:			
Acme	*yard*	.19½	@
Endurance	*yard*	.22	@
Penn	*yard*	.24	@
OSNABURGS:			
40-inch 2.35-yard	*yard*	.24	@
40-inch 2.48-yard		.26½	@
37½-inch, 2.42-yard		.27	@
RAINCOAT FABRICS:			
COTTON:			
Bombazine 64 x 60 water repellent	*yard*	.17½	@
60 x 48 not water repellent		.14½	@
Twills 64 x 72		.22	@ .25
64 x 102		.25	@ .30
Tweed		.35	@ .40
Tweed, printed		.20	@ .22
Plaids 60 x 48		.15¼	@
56 x 44		.14½	@
Surface prints 60 x 48		.15¾	@
64 x 60		.17¾	@
IMPORTED WOOLEN FABRICS SPECIALLY PREPARED FOR RUBBERIZING —PLAIN AND FANCIES:			
Repp		.25	@ .32
63-inch, 3¼ to 7½ ounces	*yard*	.85	@ 2.25
36-inch, 2¾ to 5 ounces		.55	@ 1.30
IMPORTED PLAID LINING (UNION AND COTTON):			
63-inch, 2 to 4 ounces	*yard*	.65	@ 1.25
36-inch, 2 to 4 ounces		.45	@ .95
DOMESTIC WORSTED FABRICS:			
36-inch, 4½ to 8 ounces	*yard*	.47½	@ 1.25
DOMESTIC WOVEN PLAIN LININGS (COTTON):			
36-inch, 3¾ to 5 ounces	*yard*	.16	@ .30
SHEETINGS:			
40-inch 2.35-yard	*yard*	.28½	@
40-inch 2.50-yard		.27½	@
40-inch 2.70-yard		.24½	@
40-inch 2.85-yard		.23	@
40-inch 3.15-yard		.19½	@
JACKET:			
Delaware	*yard*	.20½	@
Schuylkill	*yard*	.23½	@
STOCKINETTES:			
COTTON, 52-INCH:			
D—14-ounce	*yard*	*.85	@ .90
E—11½-ounce		*.60	@ .65
F—14-ounce		*.85	@ .90
G— 8-ounce		*.75	@ .80
H—11-ounce		*.70	@ .85
I— 9-ounce		*.60	@ .65
Knitaback	*pound*	*1.60	@ 1.65
WOOL, 52-INCH:			
A—14-ounce	*yard*	*1.75	@
B—14-ounce		*2.25	@
C—14-ounce		*2.50	@
TIRE FABRICS:			
17¼-ounce Sea Island, combed	*square yard*	1.75	@
17¼-ounce Egyptian, combed		1.30	@
17¼-ounce Egyptian, carded		1.20	@
17¼-ounce Peelers, combed		1.10	@
17¼-ounce Peelers, carded		.90	@

*Nominal.

TIRE
FABRICS

JENCKES
SPINNING
COMPANY

PAWTUCKET
RHODE ISLAND

THE MARKET FOR RUBBER SCRAP.

Copyright, 1918.

NEW YORK.

EVIDENCES of the long-deferred activity in this market bespoke good business prospects early in February, as inquiries were plentiful and the mills appeared to be interested in replenishing stocks. The severe weather, fuel shortage and shipping embargoes, however, prevented the expected return of business activity in the rubber scrap market. With better weather conditions prevailing and prospects of relief for the congested freight situation, there is reason to expect a change for the better in the near future. The undertone has been generally firm and prices in some grades are higher than a month ago.

BOOTS AND SHOES.—Trading with the mills has been limited and inquiries were confined to small available lots. Dealers' transactions covering sales of considerable volume have been reported. The general situation has been steady and prices firm, showing advances of ⅛ to ¼ cent from last month.

TIRES.—Inquiries have helped to steady this material, although trading has been light and confined mostly to dealers. Later in the month dullness prevailed. Prices have remained unchanged.

INNER TUBES.—Small demand with trading limited to small parcels was noticed in this material, while prices have been steady and show advances in some instances.

MECHANICALS.—Stock movements have been light although inquiries were more frequent than for some time past, the various grades of hose being most prominent.

STATISTICS.—The London and Liverpool imports of waste and reclaimed rubber for December were 108,100 pounds, value £1,032, compared with 156,400 pounds, value £1,025, for November. Exports for December were 306,300 pounds, value £4,675, compared with 733,000 pounds, value £14,719, for November.

NEW YORK QUOTATIONS FOR CARLOAD LOTS DELIVERED.

FEBRUARY 25, 1918.

Prices subject to change without notice.

	Per Pound.
Boots and shoes	$0.09¼ @ $0.09½
Trimmed arctics	.07¼ @ .07¾
Untrimmed arctics	.06⅜ @ .06½
White tires, Goodrich and Goodyear	.05¾ @
Auto tires, standard white	.05½ @ .05¾
standard mixed	.05⅜ @ .05½
stripped, unguaranteed	.04½ @
Auto peelings, No. 1	.09¼ @ .09½
No. 2	.07 @ .07¼
Inner tubes, No. 1, old packing	.22½ @ .23
new packing	.25 @ .26
No. 2	.11½ @ .12
red	.11½ @ .12
Irony tires	.01½ @ .02
Bicycle tires	.04¾ @ .05
Solid tires	.05¾ @ .06
Clean truck tires	.06¼ @ .06½
White scrap, No. 1	.12 @ .13
No. 2	.09½ @ .10
Red scrap, No. 1	.08½ @ .09
No. 2	.07 @ .07½
Mixed black scrap, No. 1	.05 @ .05½
No. 2	.04 @ .04¼
Rubber car springs	.04¾ @ .05
Horse shoe pads	.04½ @ .04¾
Matting and packings	.01½ @ .01¾
Garden hose	.02¼ @ .02½
Air brake hose	.06 @
Cotton fire hose	.02¼ @
Large hose	.02 @ .02½
Hard rubber scrap, No. 1, bright fracture	.26 @ .27
Battery jars (black compound)	.02½ @ .02¾
Insulated wire stripping, free from fiber	.04 @
Rubber heels	.04 @ .04½

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

Copyright, 1918.

NEW YORK.

BASE metals have undergone but little change during the past month when severe weather, followed by holidays, shutdowns and country-wide disarrangement of shipping facilities combined to interfere with general market conditions. Copper has been quiet and unchanged, a curtailment of out-put being noticed later in the month, due to railroad congestion, resulting in a temporary shortage. Lead has continued quiet but firm. A leading producer advanced prices ¼-cent on February 13, that failed to influence the general market. Spelter continues dull and unchanged while antimony has exhibited very little life with lower prices ruling.

Trade in rubber ingredients has been adversely affected by the unusual conditions that prevailed last month resulting in a serious curtailment of production. This caused a scarcity of certain materials and a consequent stiffening of values and in some instances prices advanced. Had the demand not subsided at about the same time as the production declined much higher prices would have been recorded. As for the future, it is believed that when the railroad congestion has been relieved, unusual activity will prevail in the market for chemicals and compounding ingredients.

ACCELERATORS. (Organic.) Certain of these have advanced in price due to scarcity of raw materials. Accemal is a recent addition to the list.

BARYTES. There has been an advance in this material. Pure white spot selling for $35 a ton while off-color barytes is out of the market.

DRY COLORS. There was a good demand for all grades until the market became involved in the prevailing shipping difficulties, when supplies soon became scarce and in some cases unobtainable. The firm position of the market strongly indicates higher prices.

LEAD PIGMENTS. These materials have been in moderate demand at unchanged prices. The freight situation affected pig lead shipments that, the result of which was at once reflected in the pigment market. Available stocks are not large, consequently prices are firm.

LITHOPONE. A strong situation prevails in this market, with prices fixed at 6½ cents in carload lots and 6¾ cents less than carload lots at the mills.

SHELLAC. This has remained firm at 53 cents to 60 cents. A new substitute known as Sheel-lac gum, in four grades, has recently been offered to the trade.

WAXES. A most unusual situation has developed in waxes, Carnauba being particularly scarce. Ozokerite is offered in limited supply and Montan wax is not available.

ZINC OXIDE. Nothing new has occurred in this market and prices are unchanged.

NEW YORK QUOTATIONS.

FEBRUARY 25, 1918.

Subject to change without notice.

ACCELERATORS, ORGANIC.				
Accelerene	lb.	*$2.62	@	
Accemal	lb.	1.25	@	1.35
Aldehyde ammonia (crystals)	lb.	.26	@	.27
Aniline oil	lb.	.26	@	.27
Annex	lb.	.75	@	
Duplex	lb.	1.00	@	
Excellerex	lb.	.80	@	.85
Hexamethylene tetramine (powdered)	lb.	1.15	@	1.25
Paraphenylenediamine	lb.	*2.75	@	
Tensilite	lb.	.70	@	
Thiocarbanilide	lb.	*.50	@	
Velocite	lb.	.60	@	
Vitaminex	lb.	.75	@	
ACCELERATORS, INORGANIC.				
Lead, dry red	lb.	.10	@	
sublimed blue	lb.	.08½	@	
sublimed white	lb.	.08½	@	
white, basic carbonate	lb.	.09	@	
white, basic sulphate	lb.	.08½	@	
Lime, flour	ton	25.00	@	

Litharge, domestic	lb.	.09½@	.10
English	lb.	.12½@	.13
sublimed	lb.	.09¼@	
Magnesium, carbonate	lb.	.09¼@	.12½
calcined, heavy	lb.	.12 @	
light	lb.	.70 @	
Magnesium oxide	lb.	.07 @	
Magnesite, calcined, powdered	ton	40.00	@65.00

ACIDS.

Acetic, 28 per cent (bbls.)	lb.	.05½@	.06½
Glacial, 99 per cent (carboys)	lb.	.35 @	.36
Cresylic, 97-99 per cent, straw color	gal.	1.10 @	
95 per cent, dark	gal.	1.00 @	
Muriatic, 20 degrees	lb.	.02 @	.02¼
Nitric, 40 degrees	lb.	.08½@	.09
Sulphuric, 66 degrees	lb.	.02¼@	.02½

ALKALIES.

Caustic soda, 76 per cent	lb.	.05 @	.05½
Soda ash	bbl.	2.60 @	3.00

COLORS.

Black:			
Bone, powdered	lb.	*.08 @	
granulated	lb.	*.10 @	
Carbon gas (cases)	lb.	.20 @	.30
Ivory black	lb.	.16 @	.30
Lamp black	lb.	.12 @	.25
Oil soluble aniline	lb.	1.25 @	
Rubber black	lb.	.06 @	
Blue:			
Cobalt	lb.	.25 @	.35
Prussian	lb.	.70 @	.90
Ultramarine	lb.	.18 @	.50
Brown:			
Iron oxide	lb.	.02 @	.04
Ochre, domestic	lb.	.02 @	.03
imported	lb.	.04 @	.05
Sienna	lb.	.04½@	.12
Umber	lb.	.04½@	.05
Green:			
Chrome	lb.	.44 @	.50
Oxide of chromium (casks)	lb.	.85 @	
Red:			
Antimony, crimson, sulphuret of (casks)	lb.	.40 @	
crimson, "Mephisto" (casks)	lb.	.50 @	
Antimony, golden, sulphuret of	lb.	.28 @	.30
golden, "Mephisto" (casks)	lb.	.26 @	
golden, sulphuret, States brand, 16-17%	lb.	*.28 @	
red sulphuret, States brand	lb.	.25 @	
vermilion sulphuret	lb.	.55 @	
Arsenic, red sulphide	lb.	.45 @	
Indian, reduced grades	lb.	.04 @	.08
pure bright	lb.	.14 @	
Iron oxide, reduced grades	lb.	.04 @	.08
pure bright	lb.	.11 @	.14
Oil soluble aniline, red	lb.	2.50 @	3.00
orange	lb.	2.50 @	
Oxymony	lb.	.15 @	
Venetian	lb.	.02½@	.04
Vermilion, English, pale, medium, dark	lb.	1.95 @	
White:			
Lithopone, imported	lb.	.08 @	.08½
domestic	lb.	.06¾@	.07¼
Ponolith		None	
Rubber makers' white	lb.	.07 @	.07½
Zinc oxide, Horsehead brand (less carload, f. o. b. factory)	lb.	.10½@	
"XX red"	lb.	.10½@	
"Special"	lb.	.11 @	
French process, red seal	lb.	.13¾@	
green seal	lb.	.13¾@	
white seal	lb.	.14¼@	
Zinc sulphide, pure	lb.	None	
Yellow:			
Chrome	lb.	.24 @	.30
Ochre	lb.	.04½@	.05½
Oil soluble aniline	lb.	2.50 @	
Cadmium, tri-sulphate	lb.	*2.68 @	
sulphide	lb.	*2.15 @	

COMPOUNDING INGREDIENTS.

Aluminum flake (carloads, bbls., f. o. b. factory)	ton	25.00 @	
(carloads, sacks, f. o. b. factory)	ton	23.00 @	
Ammonia carbonate, powdered	lb.	.11½@	
lumps	lb.	None	
Asbestine (bags)	ton	21.00	@25.00
Asbestos (bags)	ton	*35.00 @	
Barium, carbonate, precipitated	ton	60.00 @	
sulphide, precipitated	lb.	.07 @	
Barytes, pure white	ton	33.00	@35.00
off color	ton	None	
uniform floated (f. o. b. factory)	ton	*20.00	@21.00
Basofor	ton	100.00 @	
Blanc fixe	lb.	.04½@	.05
Bone ash	lb.	*.06 @	
Chalk, precipitated, extra light	lb.	.05 @	.05½
precipitated, heavy	lb.	.04 @	.04½
China clay, domestic (powdered)	ton	*12.00	@20.00
imported (powdered)	ton	*45.00 @	
Cotton linters, clean mill run	lb.	.06 @	
Graphite, flake (400 pound bbl.)	lb.	.15 @	
amorphous	lb.	.06 @	
Ground glass FF. (bbls.)	lb.	*.02¾@	
Infusorial earth, powdered	ton	60.00 @	
bolted	ton	65.00 @	
Mica, powdered	lb.	.04¼@	.05½
Plaster of Paris	bbl.	.03½@	.05
Pumice stone, powdered (bbl.)	lb.	.03 @	.04
Rotten stone, powdered	lb.	.02½@	.04½
Silex (silica)	ton	25.00	@30.00
Soapstone, powdered	ton	18.00 @	
Starch, powdered corn (carload, bbls.)	cwt.	5.37 @	
(carload, bags)	cwt.	5.14 @	
Talc, American	ton	15.00	@22.00
French	ton	*28.00 @	
Tripoli earth, powdered	ton	60.00 @	
bolted	ton	65.00 @	
Tyre-lith	ton	85.00 @	
Whiting, Alba	cwt.	.90	@ 1.10
commercial	cwt.	1.25 @	
gilders	cwt.	1.30 @	
Paris, white, American	cwt.	1.50 @	
English cliffstone	cwt.	1.75 @	
Wood pulp XXX	ton	*35.00 @	

MINERAL RUBBER.

Gilsonite	ton	50.00	@55.00
Genasco (carloads)	ton	55.00 @	
M. R. X.	ton	100.00 @	
Liquid rubber	lb.	*.12½@	
Pioneer	ton	50.00 @	
Richmond Brand	ton	70.00 @	
No. 64 Brand	ton	50.00 @	
Refined Elaterite	lb.	*.05 @	
Raven M. R.	lb.	*.02½@	

OILS.

Corn, refined Argo (carloads)	cwt.	22.32 @	
Linseed, raw (carloads)	gal.	1.33 @	
Palm	lb.	.28 @	.32
Paraffin	gal.	*.27 @	
Pine, steam distilled	gal.	.48 @	
Pine tar	gal.	.32 @	
Rapeseed, blown	gal.	1.70 @	
Tar (cases)	gal.	.27 @	.34
Glycerine (C. P. drums)	lb.	.70 @	
Petrolatum	lb.	.05 @	.12½
Petroleum grease	lb.	*.05 @	

SOLVENTS.

Acetone (drums)	lb.	.35 @	.36
Benzol, pure	gal.	.35 @	.40
90 per cent	gal.	.35 @	.40
Beta-naphthol, resublimed	lb.	1.10 @	
ordinary grade	lb.	.75 @	
Halowax oil No. 1000 (f. o. b. Wyandotte)	lb.	.25 @	
No. 1001 (f. o. b. Wyandotte)	lb.	.32 @	
Naphtha, motor gasoline (steel bbls.)	gal.	.24 @	
73 @ 76 degrees (steel bbls.)	gal.	.33 @	
68 @ 70 degrees (steel bbls.)	gal.	.28 @	
V. M. & P. (steel bbls.)	gal.	.23 @	
Toluol, pure	gal.	None	
Turpentine, spirits	gal.	.48 @	
wood	gal.	.42 @	
Venice	lb.	.10 @	

SUBSTITUTES.

Black	lb.	.11½@	.13
White	lb.	.13½@	.24
Brown	lb.	.18 @	.24
Brown factice	lb.	.09 @	.23
White factice	lb.	.13 @	.25
Paragol soft and medium (carloads)	cwt.	15.56 @	
hard	cwt.	15.06 @	
Rubhide	lb.	*.38 @	

VULCANIZING INGREDIENTS.

Carbon, bisulphide (drums)	lb.	.07 @	.08
black (cases)	lb.	.20 @	.30
tetrachloride (drum)	lb.	.16 @	
Lead, black hyposulphite (Black Hypo)	lb.	None	
Orange mineral, domestic	lb.	.13 @	.14
Sulphur chloride (drums)	lb.	.06½@	.06⅞
Sulphur, flour, velvet brand (carloads)	cwt.	3.95 @	
pure soft	cwt.	3.95 @	

(See also Colors—Antimony)

WAXES, RESINS, PITCHES AND ADHESIVES.

Cantella gum	lb.	.43 @	
Glue, high grade	lb.	.35 @	.45
medium	lb.	.30 @	.35
low grade	lb.	23 @	.27
Pine tar, retort	bbl.	14.50 @	
kiln	gal.	.28 @	
Pitch, Burgundy	lb.	.05 @	
coal tar	lb.	.01 @	
pine tar	lb.	.02½@	
Resin, Pontianak, refined	lb.	None	
granulated	lb.	None	
fused	lb.	None	
Rosin, K.	bbl.	7.80 @	
Shellac, fine orange	lb.	.75 @	
Tar, coal	bbl.	*4.25 @	
Wax, beeswax, white	lb.	.62 @	.65
ceresin, white	lb.	.18 @	.20
carnauba	lb.	.58½@	.75
ozokerite, black	lb.	.58 @	.63
green	lb.	.78 @	.83
montan	lb.	None	
substitute	lb.	.25 @	.28
paraffin, crude 118/120 m. p. (cases)	lb.	.10½@	
124/126 m. p. (cases)	lb.	.09½@	
refined 128/130 m. p. (cases)	lb.	.14½@	
135/137 m. p. (cases)	lb.	.15¼@	.16

*Nominal.

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